NOVEMBER 8, 1954

How to Handle Repair Parts . . . p. 25

RAILWAY AGE

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IN THIS ISSUE:

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Needed—More Rate Study

How GN Radio Expedites Trains

Questions & Answers

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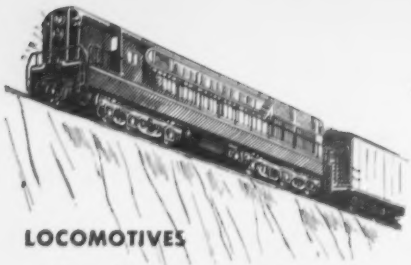

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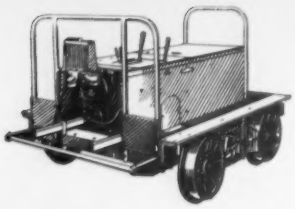

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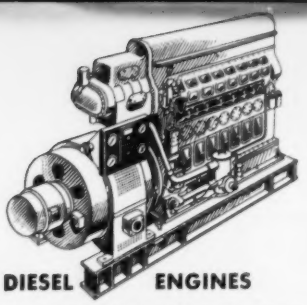

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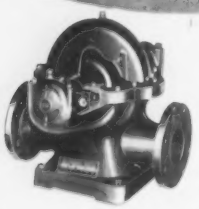

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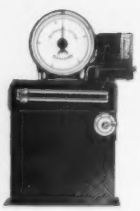

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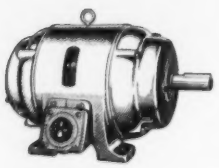

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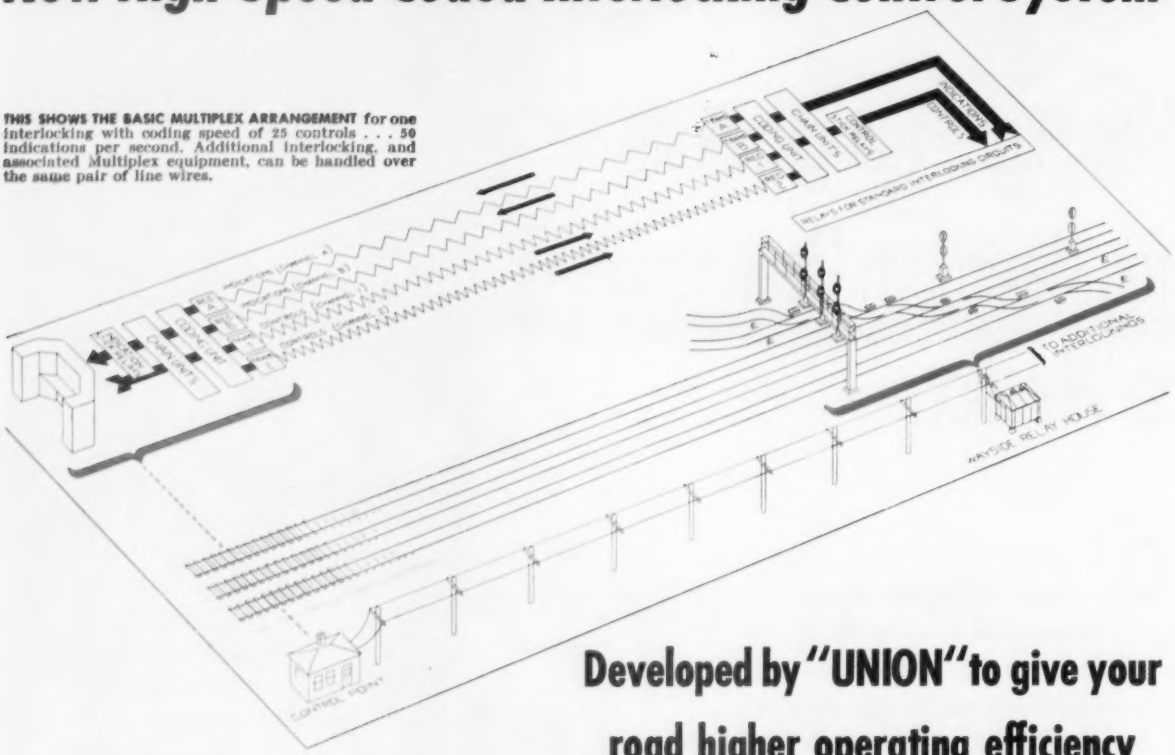

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November 8, 1954 **Vol. 137, No. 19**

Week at a Glance

A series of statements, covering many aspects of the "railroad story," has been presented by the AAR to the President's Committee on Transport Policy. 7

Two trillion ton-miles of intercity freight traffic by 1975—nearly double the present figure—was the prediction of Richard L. Bowditch before the October 29 Washington meeting of the American Society of Traffic & Transportation. Mr. Bowditch looks for railroads to handle 40% of this, trucks 30%, water carriers and pipe lines 15% each, air lines less than 1%. The automobile, he says, will remain the "predominant mode of passenger transportation," with air lines becoming the major long-distance commercial carrier, and helicopters assuming an important place. But there'll be enough traffic, he thinks, for railroads and buses each to increase their business "by about one-third." Other features of the meeting are outlined on page 8

Automatic retarder control with advanced electronic refinements is being tried out in the Union Pacific's North Platte yard. 9

September earnings of Class I railroads looked just a *little* better, relative to last year, than have those of most other 1954 months, but results for the year to date are still way below those for the corresponding part of 1953. 12

FORUM: More people are needed on the rate problem—to work both inside and outside the railroad industry. 19

Demurrage and car leasing problems are covered in this week's Question & Answer page. 20

Repair parts are handled on the Cotton Belt, with the triple objective of providing maximum protection for car and diesel maintenance, simplifying the checking

Every WABCO packing cup has a built-in memory

IF you ever looked closely at a WABCO packing cup, you noticed several numbers and letters molded right in it.

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Current Statistics

Operating revenues, nine months	
1954	$ 6,975,490,037
1953	8,082,250,257
Operating expenses, nine months	
1954	$ 5,546,999,420
1953	6,087,046,185
Taxes, nine months	
1954	$ 658,143,188
1953	972,804,921
Net railway operating income, nine months	
1954	$ 580,613,411
1953	845,430,758
Net income, estimated, nine months	
1954	$ 394,000,000
1953	650,000,000
Average price railroad stocks	
November 1, 1954	71.24
November 2, 1953	59.72
Carloadings, revenue freight	
Forty-three weeks, 1954	27,923,657
Forty-three weeks, 1953	32,310,025
Average daily freight car surplus	
October 30, 1954	30,314
October 31, 1953	7,595
Average daily freight car shortage	
October 30, 1954	3,664
October 31, 1953	2,971
Freight cars on order	
October 1, 1954	11,993
October 1, 1953	42,198

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Week at a Glance CONTINUED

and ordering of material, and keeping inventories to a minimum. 25

Radio expedites trains on 906 miles of the Great Northern's main line between Minneapolis and Montana. 30

A luminous ceiling is only one of many features incorporated in the Burlington's new Hannibal, Mo., station for passenger comfort and convenience. 32

BRIEFS

"The Queen Elizabeth" is the name just selected—and approved by the queen herself—for the new 1,200-room hotel which the Canadian National is building in Montreal.

Final reminders of the steam locomotive age are fast disappearing from the wholly dieselized Seaboard, with the last of 113 water tanks and of 27 coal chutes, and one of the few remaining roundhouses, all scheduled for demolition by the end of this year.

Trailer-trainship operation between Alaska and Pacific coastal ports is under consideration by the Alaska Steamship Company and several other coastal lines. The operation, it is understood, would utilize vessels similar to those of Seatrain Lines, Inc., with a capacity of about 100 freight cars apiece. While the Alaska Steamship Company has admitted that studies are under way, it has declined to make any statement about the findings until they are completed.

Courtesy is often more than its own reward! The will of a long-time traveler on the Boston & Maine left $2,000 to the road to assist "worthy employees" because of courteous treatment extended by B&M personnel during many years. The money has been added to the road's employees' fund for educational and charitable purposes.

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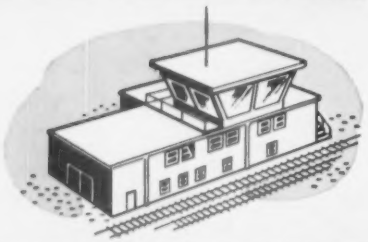

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This advertisement appears in the interest of the Paint Industry of America

What AAR Told Cabinet Group

Its presentation to President Eisenhower's committee deals with many matters, including unequal regulation, rate-making troubles, and subsidized competition; prospects seen for capital outlays totaling $1.6 billion a year

The railroad industry's presentation to the Cabinet Committee on Transport Policy is a series of statements dealing with many matters, including "inequality of regulation," rigidity of rate procedures, "time-lag" in rate cases, the passenger-deficit problem, "subsidized competition," and government practices with respect to transportation of mail and military passenger traffic.

The presentation was made by the Association of American Railroads, which made public a summary of the statements last week. The Cabinet Committee was established by President Eisenhower last July. Its job is to submit to the President, by December 1, "policy and organizational recommendations covering the whole field of transportation." (*Railway Age* July 19, page 10.)

Prospective Expenditures — In discussing "underlying considerations," the AAR asserted that the railroads "can rightly expect the government to enable them to compete on equal and fair terms with other forms of transportation." It went on to say that if the economic climate became right, the industry "could profitably invest about $1,600 million per year in capital improvement work."

Meanwhile, the cabinet group had been told of the railroad industry's low rate of return, and of its declining share of intercity freight business. The AAR then identified the "preferential treatment" accorded competitors in the matter of regulation as one of the railroads' "more serious handicaps."

The bill of particulars on this complaint dealt with the Interstate Commerce Act's exemption provisions applicable to motor carriers and water carriers, and with the "preferential treatment" of contract truckers and water carriers.

"Deregulation" of the railroads in the matter of making competitive rates was recommended. As the AAR explained, that would mean: limitations on the power of the Interstate Commerce Commission to suspend reduced rates at the instance of competing modes of transportation or on its own initiative, and a shortening of the suspension period; withdrawal of the commission's power to condemn reduced rates which are reasonably compensatory on the ground that they are "lower than necessary to meet the competition," or will attract more than a "fair share" of the available traffic; repeal of sections 2 and 4 and modification of section 3 "in order to clarify the right of railroads to meet competition." The same statement also recommended that the National Transportation Policy be revised "to recognize the right of different modes of transportation to compete down to the level of compensatory rates."

Rate-Making Rule—Another statement dealt with the rule of rate-making, arguing again, as the railroads have before, for a rewriting of the rule to eliminate that provision which requires the commission to consider "the effect of rates on the movement of traffic." The proposed new rule would also include a provision stipulating that the commission could not condemn proposed rate increases unless it found that they would produce revenues "in excess of those required to provide adequate and efficient service and establish and maintain sound credit in the railroad industry."

As to "time-lag" in rate cases, the AAR called again for the enactment of legislation to insure prompt commission action in granting rate increases as costs rise. Federal legislation was also recommended to require the ICC to take jurisdiction under section 13 if state regulatory authorities fail to act on general rate cases within a reasonable time.

Contract Carriers—The statement dealing with contract truckers was the same as the AAR filed with the ICC in the latter's Ex Parte MC-46 proceeding. That is the proceeding wherein the commission sought advice as to what changes it should recommend in the act's contract-trucker provisions. (*Railway Age*, August 2, page 10.)

As to the passenger-deficit problem, the AAR recommended that the ICC be given power ("within the general framework of section 13") to authorize discontinuance of services found to be burdensome on interstate commerce. Another legislative recommendation is that the act be amended to remove limitations on railroad-company operations of other types of transport.

Taxation was dealt with in a statement which recommended repeal of the excise taxes on amounts paid for for-hire transportation. Another recommendation called for legislation to provide a maximum estimated useful life of 20 years for determination of depreciation of railroad property for tax purposes.

The presentation on "subsidized

A CHECK REPRESENTING THE LARGEST AWARD for an employee's idea since inception of the Canadian National's suggestion system in 1949 is presented by Donald Gordon, CNR president, to P.R. Brayley, rate clerk in the Montreal freight department. Mr. Brayley's suggestion for streamlining reference tariffs permits the CNR to give shippers faster rate information. Left to right are: J. A. Argo, deputy vice-president of traffic; Mr. Gordon; M. A. Metcalf, traffic vice-president; Mr. Brayley; and W. H. Hobbs, the road's personnel vice-president.

competition" was the same as the statement submitted earlier to the Commission on Intergovernmental Relations. It advocated consideration of the impact of public aid on competitors of the subsidized agency, the collection of user charges, and determination by the ICC of the economic justification for proposed waterway projects. Air transportation, it was urged, "should now be required to make its own way without favor."

Highways—The presentation on the financing of highways was the same as the AAR's presentation to the President's Advisory Committee on a National Highway Program (*Railway Age*, October 18, page 9). On the matter of "reciprocity" for trucks, the AAR submitted a statement it has also filed with the House Committee on Interstate and Foreign Commerce, which now has its staff at work on a study of the matter. The "reciprocity" statement argued that a system of user charges could be established to apportion highway costs on an equitable basis between local and out-of-state truckers.

In its statement on the federal government as a user of transportation facilities, the AAR said the "experimental" flying of three-cent mail should be discontinued. It argued that the Post Office Department should observe the federal statutes calling for air-mail rates different from those applicable on mail moving by surface carrier.

Military passenger traffic, the AAR also complained, is being diverted to "irregular" and "contract" air carriers which "predominantly use aircraft acquired by lease at low rentals from the Air Force." The statement went on to warn that the Department of Defense is there pursuing "a shortsighted policy of false economy," and that the Civil Aeronautics Board "has permitted relaxation of standards of safety and reliability."

As to the Post Office's competition with the Railway Express Agency, the AAR called upon the "Executive Branch of the Government to oppose any proposal for more liberal size and weight limits on parcels eligible for shipment by Parcel Post. If such size and weight limits are liberalized, the AAR added, the railroads should be freed of obligation to provide express service. It was also recommended that charges for Parcel Post service be made "fully compensatory."

Insofar as section 22 is concerned the railroads want no change which would impair their competitive position in the bidding for government freight. As a transportation organization for war or other emergency, the railroads like the pattern "successfully employed in World War II and again in the Korean emergency." That pattern provided, in turn, the Office of Defense Transportation and the Defense Transport Administration.

ICC Lists Changes In Expense Reports

Division 1 of the Interstate Commerce Commission has announced that after January 1, 1955, "expense accounts of officers and other employes shall be supported by receipted bills wherever practicable." The requirement follows a study into the subject as reported in *Railway Age*, October 18, page 12.

The commission's notice states that the accounts should distinguish between "lodging, meals and incidental expenses, with an explanation of unusually large incidental expenses." The notice also modifies superintendence accounts 201, 301, 351, 371, 451 and 454 to require separation of charges under each account as to "salaries of officers, office expenses, other expenses of officers, and pay and expenses of clerks and attendants."

More important than these, however, Mr. Bowditch stated, will be the need to "re-examine" the regulation of rates with an objective of creating "fair competitive conditions" and maintaining "a strong common carrier transportation system."

Unorthodox Proposals—Dr. Arthur S. Flemming, director of the Office of Defense Mobilization, suggested at the luncheon session of the meeting that the President's Cabinet Committee on Transportation Policy will come up with some "unorthodox proposals" intended to solve some of the current problems of the industry. He is "convinced," he added, that these problems must be approached "in something other than orthodox fashion."

He said in his talk that he ought not to elaborate on this remark and later declined to say whether he was referring to the general transportation field or to any particular segment of it. Dr. Flemming said he feared it would stir up "speculation" if he added to what he said.

He said a separate study is being made at his request to determine how the supply of freight cars needed for mobilization can be procured in a peacetime economy. Proposals on this subject will be made to him about the first of the year, he added.

"An awesome power" must be developed and held in readiness for mobilization, he declared, as present policies call for a "massive capability" to strike back if America is attacked. His office, he said, hopes to enable the transport industry to make a quick but "orderly transition" from peace to war on an "all out basis."

Dr. Flemming said he is confident the transportation industry will cooperate "to protect" a mobilization base unequalled in history.

Traffic a Profession—Interstate Commerce Commissioner Howard G. Freas urged the Traffic & Transportation Society to continue its efforts to secure recognition for competent traffic personnel as professionals on a par with physicians, lawyers and certified public accountants.

He suggested that such recognition has not been achieved because of incompetents claiming the title, and because standards for proper evaluation have not been widely accepted. He commended the society's examination system of accreditation along with the work of other groups for offsetting the effect of those who "sacrifice the public good for minor advantages to themselves or their companies."

Commissioner Freas advocated making the traffic man a professional first and a wage-earner second, and added that "no one has a high regard for the shyster or the quack. Why should the ethics of the businessman be any less? If you permit members of your profession to prostitute the ideals that should permeate his thinking you weaken your own position and make traffic work less attractive."

Unwarranted participation by government witnesses in carrier cases

Rates & Fares

Sauce for the Government

Bowditch would end "cut-rates" for federal agencies—Traffic Society also hears Flemming, Freas

Richard L. Bowditch, chairman of the board of the Chamber of Commerce of the United States, has called for "a complete change in attitude by some government agencies" in their transportation policies. He spoke October 29 at the ninth annual meeting of the American Society of Traffic & Transportation, Inc., at Washington, D.C.

"There is no reason," he declared, "why the government should be entitled to play one carrier against another for special cut-rates, while the public is prevented from doing this under severe penalties of law. With such a tremendous volume of government traffic, this practice has ominous potentialities and must be stopped before it gets out of hand."

For 1975—Mr. Bowditch spoke on "Transportation in an Atomic Age," and predicted for the year 1975 use of nuclear-powered locomotives, "striking" developments in electronic devices, extension of trailer-on-flat-car operations, "almost indestructible" crossties and great increases in freight volumes.

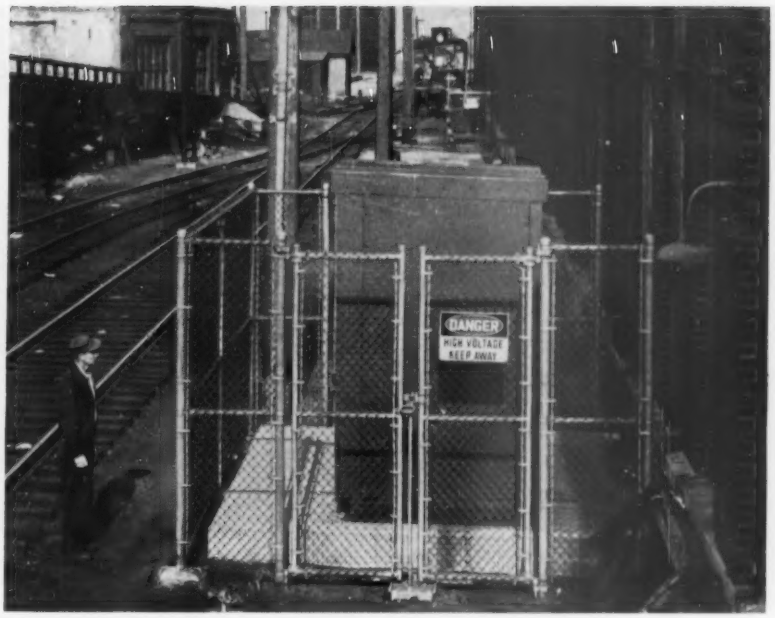
also was scored by Mr. Bowditch. "The regulatory body is supposed to represent the public interest," he asserted, "and government agencies are not supposed to try to influence their decisions as spokesmen for the public or large segments of the public.

"If these agencies have a direct interest as direct purchasers of transport service, let them come in and say their piece in that limited capacity but don't let them bring in enough witnesses to fill a troop train and unnecessarily delay the proceedings."

In connection with his suggested "re-examination" of rate regulation, Mr. Bowditch stated that competition already holds rates and fares to low levels. "Regulatory agencies must not try to press them further," he said, by refusing "warranted" requests or by unnecessary delays in making decisions. He added that the government will continue "big" until 1975 and urged that its agencies "rely on commercial transport facilities for their primary transportation needs rather than enter unfair competition with the carriers."

Other speakers included Robert J. Bayer, president of the society and editor of Traffic World; Charles H. Vayo, chairman of the board; Edward F. Lacey, secretary of the U. S. Department of Commerce's Transportation Council and general chairman for the meeting; and other society officers who gave reports—Clare J. Goodyear, executive vice-president; F. A. Doebber and Dr. Lloyd Wilson, vice-presidents, and Herschel Hollopeter, secretary-treasurer; also, Harry E. Dixon of the Delta Nu Alpha fraternity.

The board of directors elected Mr. Bayer chairman at the conclusion of the meeting. Mr. Goodyear, traffic manager of the Philadelphia & Reading Coal & Iron Co., was elected president. It was announced that the society will hold a traffic and transportation seminar at Harvard University September 8-9, 1955.



POWER FOR 60-CYCLE TOOLS in the New York Central's Harmon, N.Y., diesel shop, has been made available through an outdoor factory-assembled substation supplied by the General Electric Company. Rated at 500 kva, the substation steps the line voltage of 4,160 down to 440 for distribution in the shop. Maximum safety is provided by having the equipment completely encased in metal, and a protective fence around it.

Roads Ask ICC to Adjust Arkansas Intrastate Rates

The lag of Arkansas intrastate rates behind comparable interstate charges is costing railroads serving that state $1 million a year, they have informed the Interstate Commerce Commission. They claim that the Arkansas Public Service Commission has refused to allow intrastate increases in line with rises allowed by the ICC on interstate shipments. The roads would have the ICC override the state body's authority and bring the intrastate rates up to interstate levels.

C&NW Seeks More Trailer-Load Piggyback Rates

The Chicago & North Western has asked the Western Trunk Line Committee to docket its application for trailer-load rates for an extensive list of commodities in piggyback service between the Chicago-Waukegan-Milwaukee area and St. Paul and Minneapolis. The rates would be competitive with those charged by motor common carriers. The C&NW already has such rates in effect between Chicago and Green Bay, Wis., and a number of other points in Illinois and Wisconsin.

In commenting on the new quantity rates proposed for the Twin Cities, C&NW President Paul E. Feucht said experience thus far indicates "a great deal of promise for piggyback."

Operations

UP Yard Has Automatic Controls

Test installation includes "memory" capacity of 120 cars and electronic car speed adjustments

The Union Pacific is testing a demonstration installation of automatic control for power switches and car retarders in a classification yard at North Platte, Neb. The system, now in service on eight tracks, will be extended to all 42 tracks. This yard handles as many as 4,000 freight cars in 24 hours.

This automatic switching system permits automatic controls of the power switches to be set up before cars pass over the hump, the controls being initiated by a man pushing a button corresponding with the classification track to which each car or cut of cars is to be routed. Such a system was first placed in service on the Canadian Pacific and the Illinois Central in 1950, and has since been installed in several yards on other roads. One new feature of the Union Pacific system at North Platte is that automatic switching controls can be set up for as many as 120 cars before these cars start over the hump.

Flexibility Retained—Union Pacific engineers also point out that after routes for 120 cars have been stored, the operator still has complete control over the system functioning. Routes can be canceled, inserted or substituted at will, without disturbing the remainder of the system control. In addition, by means of overriding switches in the control console, complete control is kept over all cars moving over the switching leads.

Also at North Platte, the UP has a test installation of an electronic system of automatic control of retarders;

CONTROL CONSOLE at left is for the "electronic brain," and the conventional retarder and switching control panel is in front of the operator. During the experimental operations, he can use either.

automatic control of retarders, in which the speed is governed by short track circuits, was developed by the Union Switch & Signal Division of Westinghouse Air Brake Company, and was installed in 1952 in a large yard on the Milwaukee. At Gary, Ind., in May 1953, the Elgin, Joliet & Eastern made a 16-track test installation of automatic retarder controls using radar equipment for speed measurement, developed by the General Railway Signal Company, and this system has now been installed in the entire 58-track yard.

The Union Pacific test installation at North Platte also uses radar for speed measurement. As freight cars go down the incline, the rolling characteristics are determined electrically and transmitted to an "electronic brain" to be used later as a factor in the control of the retarder. A second factor is the reduction in speed which will be effected by the curvature in the turnouts leading to a given classification track.

Rolling Distance Allowance—A new feature of the UP system is that it takes into account the distance a car is to go on a classification track before reaching other cars already standing there. This factor is determined by an automatic count of cars going into the track, from which is subtracted the number of cars when pulled from the departure end.

As a car enters and passes through a retarder, a radar speed meter continuously measures the speed. This information is transmitted to the electronic "brain" which combines all factors involved, and automatically controls the retarder so that the car passes out of the leaving end at the proper speed to pass through the switches and turnouts to the selected classification track and roll on to approach the other cars standing there at a coupling speed of about 3 mph. As the track is filled with coupled cars, the system shortens the range and releases the cars accordingly.

The new system at North Platte was developed by R. J. Berti, assistant electrical engineer, and D. C. Bettison, signal engineer, for the Union Pacific, and Perry A. Seay of the Reeves Instrument Corporation.

CNR Offers New Meal Service

Dinette-car and coffee-shop service recently were inaugurated on many Canadian National mainline trains. A meal for less than a dollar is now available for the first time since prewar years on the Montreal-Vancouver "Continental Limited"; trains 3 and 4 between Toronto and Vancouver; and the Montreal-Toronto "International Limited" and "LaSalle." The dinettes and coffee shop units are operated continuously throughout the day and evening.

Patchell Sees No Substitute for RRs

"One passenger train can do the work of a couple of miles of automobiles and one freight train can do the work of a big fleet of trucks," Walter W. Patchell, Pennsylvania vice-president, said at the recent sixth annual fall meeting of the Greater Philadelphia-Delaware-South Jersey Conference in Philadelphia. Both jobs can be done by railroads at lower "true" cost to the public as a whole, he added, than "by any other means of transportation yet developed or likely to be invented, developed and installed ready for work by 1970."

Mr. Patchell had predicted that the area served by the council will by 1970 require transportation facilities for about 28.5% more passenger travel and about 50% more movement of goods than at present. The area, he added, can take three steps to insure the future ability of railroads to meet its transportation needs: Stop taxing railroad facilities to help supply untaxed facilities that take subsistence away from the rails; encourage and support commuting by train, which does the job at far less cost and without causing congestion; and reverse the practice of requiring railroads to operate branches and trains that are not and never will be self-supporting.

Santa Fe to Start West Coast Piggyback

Closely following the start of the Santa Fe's new Chicago-Kansas City piggyback service has come announcement of a Los Angeles-San Diego operation to be inaugurated November 15.

Like the Chicago-Kansas City service (*Railway Age*, November 1, page 14), the west coast operation will be handled by 24- and 32-ft trailers and flat cars equipped with tiedown apparatus for two of the smaller trailers, one of each size or one of the larger units. Also like the Chicago-Kansas City service, rates and minimums will be truck competitive. The west coast service will be on an overnight basis in both directions—from Los Angeles daily except Saturday and from San Diego daily except Sunday (departure from San Diego being after midnight).

DL&W to Extend T-O-F-C Service

Beginning November 8, the Lackawanna, in conjunction with its western connections, will expand its piggyback service by providing second morning delivery for such traffic at Detroit and St. Louis. The Nickel Plate will handle business into and out of St. Louis, as will the Wabash. The Wabash will haul Detroit traffic.

The Lackawanna's piggyback service west of Buffalo now will reach, via the NKP, Cleveland, Chicago and St. Louis; and, via the Wabash, Detroit, Chicago and St. Louis.

The Lackawanna also has announced that patrons on its own lines in the New York-Newark suburban area east of Dover, N.J., will be served by the expanding trailer-on-flat-car service.

Fire Destroys Shops Of Waterloo Road

A fire which broke out about 9 a.m. October 31 destroyed the shops and roundhouse of the Waterloo, Cedar Falls & Northern at Waterloo, Iowa.

In addition, the fire destroyed four electric freight locomotives, two interurban passenger cars and one suburban type car. C. M. Cheney, president and general manager, told *Railway Age* the company was able to maintain its freight service (it owns 14 electric locomotives) and that passenger service was likewise continuing, "although it will be pinched a bit for a while."

Mr. Cheney estimated the damage would total slightly less than $500,000, covered at least in part by insurance. He indicated that diesel locomotives might be borrowed if freight traffic exceeded the capacity of the remaining electric locomotives. When asked if the fire might precipitate dieselization of the 124-mile property, he said "No," but added that dieselization has been considered and may come later.

UP To Withdraw Two Passenger Trains

The Union Pacific has announced withdrawal of two "name" passenger trains—the "Gold Coast," a coach and sleeping car train operated daily between Chicago and San Francisco, and the "Pony Express," which ran daily between Denver and Los Angeles.

The "Pony Express" made its last run from Denver November 5 and from Los Angeles November 6. The "Gold Coast" will operate only until January 8.

A third train, the "San Francisco Overland," which operates between Chicago and San Francisco, will be completely equipped with streamlined cars to be released from other streamlined trains scheduled to receive dome cars of various types in the near future.

E. A. Klippel, general passenger traffic manager, explained that the routes served by the discontinued trains will continue to be served by streamlined trains on which the UP now charges no extra fare.

Competitive Transport

Air Association Offers Views to Weeks Committee

The Air Transport Association has advised the Cabinet Committee on Transportation that consideration of the airlines' subsidies would be "a great and serious mistake . . . for they really have no bearing on the basic causes of railroad difficulties."

Rejecting theories that postal subsidies and publicly constructed airport terminals are harmful to the roads, the ATA also stated that the airlines' use of the Federal Aidways System is "fairly" paid for by taxes on fuel consumed by the airlines. The ATA statement "notes" that the railroads "pay no fuel taxes on either coal or oil."

The Cabinet Committee headed by Commerce Secretary Sinclair Weeks and appointed by President Eisenhower, is to make a report by November 30 on national transportation problems. The ATA recommended to the committee that "no progress can be made in meeting the troubles of the railroads by investigating measures which can be taken against the airlines."

"Constructive rearrangement of operating and rate-making practices" is the railroads' "only way" to solve their problems, the ATA concluded.

Traffic

Shippers Vote Against Advisory Board Expansion

The idea that other forms of transportation should be represented in regularly scheduled quarterly meetings of the 13 regional shippers' advisory boards is not feasible. That was the consensus of opinion of a panel of shippers in a poll recently conducted by *Railway Freight Traffic*, companion publication of *Railway Age*.

Better than seven out of 10 respondents to the poll voted to keep personnel of the boards "as is." The poll was conducted on this particular question because of apparent feeling on the part of some board members that topics touching on other forms of transportation should be discussed in board meetings, even though those meetings, since their inception, have been sponsored and financed by railroads. The 13 boards were originally organized to help facilitate car supply and to discuss matters, aside from rates, dealing with rail transportation of freight.

Those casting their ballots with the majority had varied reasons for voting as they did. Most prominent and frequently repeated reasons were: (1) Additional personnel would make meetings too time-consuming; (2) direct interference with rail-shipper cooperation; (3) grossly unfair to railroad policy of underwriting expense of meetings; (4) would encourage and abet open solicitation of business; (5) turn business meetings into social gatherings; and (6) unquestionable violation of the original purposes for which the boards were established.

The minority group, favoring the idea of expanding the scope of the boards by inviting other forms of transportation to participate in meetings, held that: (1) A firm ground of mutual understanding would be established between different types of carriers; (2) any present existing tension between various modes of transport could be eased by discussion of problems of mutual interest; and (3) it is one method whereby shippers could be instrumental in bringing about cooperation between all forms of transportation.

A typical opinion was that of J. R. Staley, vice-president—traffic of the Quaker Oats Company, who de-

BUDGET-PRICED MEALS are now offered to coach passengers between St. Louis, Kansas City, Colorado Springs and Denver on the Missouri Pacific's "Colorado Eagle." This combination diner-bar-lounge car, offering club breakfasts from 50¢ to $1.25 and complete dinners from $1.60 to $1.75, has been opened to coach passengers. A separate diner-lounge car offers regular-priced meals for Pullman passengers.

cleared: "Bringing other forms of transportation into these meetings would probably turn them into free-for-all solicitation tournaments and destroy their value. It is questionable that there is any practical way to include motor transport. The motor carrier industry and the shipper who uses motor carrier service extensively is frequently interested in only one or two lines—often contract carriers."

Opposing the majority were opinions like that offered by Walter C. Pine, traffic manager, DeEavel Separator Company, who wrote: "Expansion of personnel of the boards would: (1) Spread benefits of meetings to all forms of transport; (2) eliminate the idea that present boards are propaganda mediums for railroads; and (3) solve jointly, problems of vehicle detention, safe packing, claim prevention, proper procedure, and bill-of-lading instructions."

Figures of the Week

Three-Quarter Net Is $394 Million

Down $256 million from last year's $650 million—Class I operating income off $19.7 million in September

Estimated net income after interest and rentals was down $256 million for Class I roads in the first nine months of 1954 compared with the same period last year, according to the Bureau of Railway Economics of the Association of American Railroads.

CLASS I RAILROADS—UNITED STATES

	1954	1953
Month of September		
Total operating revenues	$ 781,618,934	$ 904,263,439
Total operating expenses	607,387,793	673,209,889
Operating ratio—per cent	77.71	74.45
Taxes	74,154,255	111,323,268
Net railway operating income (Earnings before charges)	80,204,309	99,941,786
Net income, after charges (estimated)	58,000,000	80,000,000
Nine Months Ended September 30, 1954		
Total operating revenues	$6,975,490,037	8,082,250,257
Total operating expenses	5,546,999,420	6,087,046,185
Operating ratio—per cent	79.52	75.31
Taxes	658,143,188	972,804,921
Net railway operating income (Earnings before charges)	580,613,411	845,430,758
Net income, after charges (estimated)	394,000,000	650,000,000

The estimated figure for the first three-quarters of this year was $394,000,000 against $650,000,000 in 1953. The net for September was $58,000,000 compared with $80,000,000 for September 1953.

Rate of return for the 12 months ending September 30 averaged 3.17% compared with a 4.51% rate for the corresponding period ended September 30, 1953.

Net railway operating income, before interest and rentals, was $580,613,411 for this year's first nine months. For the same period last year it was $845,430,758. Net railway operating income for September came to $80,204,309, which was a decrease of $19,737,477 from the corresponding figure of $99,941,786 for September 1953.

Gross for the first nine months amounted to $6,975,490,037 compared with $8,082,250,257 in the same period last year, a decrease of 13.7%. Operating expenses were $5,546,999,420 compared with $6,087,046,185 last year, a decrease of 8.9%.

Thirty-two Class I roads failed to earn interest and rentals in the first nine months; 17 were in the Eastern district, five in the Southern region, and 10 in the Western district.

Freight Car Loadings

Loadings of revenue freight in the week ended October 30 totaled 736,233 cars, the Association of American Railroads announced on November 4. This was a decrease of 9,774 cars, or 1.3%, compared with the previous week; a decrease of 44,610 cars, or 5.7%, compared with the corresponding week last year; and a decrease of 125,883 cars, or 14.6%, compared with the equivalent 1952 week.

Loadings of revenue freight for the week ended October 23 totaled 746,007 cars; the summary, compiled by the Car Service Division, AAR follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, October 23

District	1954	1953	1952
Eastern	116,428	134,178	128,240
Allegheny	126,561	156,571	145,104
Pocahontas	54,262	56,533	22,748
Southern	129,423	127,387	113,937
Northwestern	117,256	131,880	146,759
Central Western	141,909	132,853	137,992
Southwestern	60,168	65,011	65,993
Total Western Districts	319,333	329,744	350,744
Total All Roads	746,007	804,413	760,773
Commodities:			
Grain and grain products	55,646	58,042	58,114
Livestock	16,594	14,802	16,194
Coal	131,918	130,987	45,272
Coke	8,700	12,502	13,669
Forest products	46,464	45,199	46,514
Ore	52,054	76,505	87,228
Merchandise l.c.l.	64,897	72,026	74,958
Miscellaneous	369,734	394,350	418,824
October 23	746,007	804,413	760,773
October 16	721,402	822,582	838,407
October 9	703,193	804,066	142,797
October 2	721,883	812,524	851,920
September 25	710,215	819,709	862,065
Cumulative total 43 weeks	27,923,657	32,310,025	31,311,794

In Canada.—Carloadings for the seven-day period ended October 14 totaled 71,503 cars, compared with 77,254 cars for the previous seven-day period, according to the Dominion

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
October 14, 1954	71,503	25,888
October 14, 1953	74,745	30,374
Cumulative Totals:		
October 14, 1954	2,870,922	1,118,122
October 14, 1953	3,160,633	1,295,631

Organizations

Preparations Started for NRAA Exhibit Next March

Preliminary plans are now being made for the exhibition of the National Railway Appliances Association to be held at the Coliseum, Chicago, March 14-17, 1955, during the annual convention of the American Railway Engineering Association. Application forms for space at the exhibition were mailed to prospective exhibitors October 12.

Requests for space should be sent to Lewis Thomas, director of exhibits, 59 East Van Buren street, Chicago 5, in time for the first allocation of space to be made December 9.

Mechanical Division Letter Ballot Results

Committee reports presented at the June 29-30 Chicago meeting of the General Committee of the Mechanical Division of the Association of American Railroads included a total of 39 recommended changes in AAR standards and practices, as follows: air brakes, 5; car details, 8; couplers and draft gear, 2; geared hand brakes, 1; locomotive details, 2. lubrication, 2; specifications, 5; wheels, 14.

All these recommendations have now been officially approved by letter ballot with appropriate effective dates, except No. 27, which involves proposed supplementary requirements for ultrasonic testing of diesel locomotive wheels in AAR Specification M-107. These requirements are held in abeyance pending further consideration.

"Competitive Selling of Railroad Freight Service" will be the topic of discussion at the meeting of the **New York Railroad Club** at the Hotel Commodore, New York, November 12. Speakers will be A. E. Baylis, vice-president, traffic, New York Central.

and H. W. Von Willer, vice-president, traffic, Erie. The meeting will start at 8:15 p.m., preceded by dinner at 7 p.m.

The **Toledo Transportation Club** will hold its annual Shippers' Night Dinner at the Toledo Club on November 15.

At a meeting of the **Eastern Car Foreman's Association** in the Engineering Societies building, New York, November 19, George Reed, manager of general laboratories, ACF Industries, Inc., will speak on "Impact Testing of Freight Cars." The meeting will be preceded by a buffet-supper at the Old Timers Grill, New York, at 6 p.m.

Equipment & Supplies

GN's '55 Budget Nearly $16 Million

Directors of the Great Northern, on October 16, approved a budget for 1955 expenditures of nearly $16 million.

A system-wide program of roadway betterment will consume nearly $14 million of the total. Plans call for installation of 175 miles of new 115-lb rail and necessary fittings, application of 952,000 cu yd of ballasting; bank widening, and installation of heavier used rail on 105 miles of secondary lines. Thirteen bridges, in North Dakota, Montana, Washington and British Columbia, will be strengthened.

Purchase of roadway machines and tools, improvements to signaling, and line improvements also are included in the program.

NP Planning to Spend Nearly $28 Million in '55

Directors of the Northern Pacific have approved expenditure of nearly $28 million for new equipment and improvements in 1955. Some of the larger items in the program are detailed herewith.

The largest single expenditure listed is $10,223,000 for 65 new diesel locomotive units, to be comprised of 41 1,750-hp road-switchers, 12 1,200-hp switchers and three four-unit road freight locomotives of 7,000 hp.

The NP's Brainerd, Minn., shops will build 500 50-ft double-door steel box cars at a cost of $3.5 million.

The company will order 12,000 tons of 115- and 132-lb rail and fastenings for relaying 59 miles of main track. These materials are expected to cost $2.5 million. Rail relay for main and branch lines will cost an additional $3 million, plus $1,233,000 for ballasting.

New facilities in the program include: Completion of the new retarder classification yard at Pasco, Wash. ($3 million, plus about $2 million spent previously); a new bridge across the Clark Fork river at Sand Point, Idaho ($1.3 million); daylighting of the Homestake tunnel at the top of the continental divide near Butte, Mont. ($400,000); yard offices and service buildings at Northtown "D" yard, Minneapolis, at Mandan, N.D., and at Tacoma, Wash., new stations at Walker, Minn., and Gardiner, Mont., and miscellaneous structures at various points on the system, at a total cost of $333,000.

FREIGHT CARS

2,566 New Freight Cars Delivered in September

New freight cars delivered in September for domestic service totaled 2,566, compared with 2,297 in August and 5,706 in September 1953, the American Railway Car Institute and the Association of American Railroads have announced jointly.

Orders for 2,396 freight cars for domestic use were placed in September, the announcement added, and the backlog of cars on order October 1 was 11,993, compared with 13,013 on September 1. A breakdown by types of cars ordered and delivered in September, and of cars on order October 1, appears in the following table.

Type	Ordered Sept. '54	Delivered Sept. '54	On Order & Undelivered Oct. 1, '54
Box—Plain	1,050	1,396	4,670
Box—Auto	750	55	1,995
Flat	0	37	440
Gondola	300	17	350
Hopper	0	27	415
Covered Hopper	5	105	736
Refrigerator	0	535	2,065
Tank	171	388	1,141
Caboose	0	6	59
Other	120	0	122
TOTAL	2,396	2,566	11,993
Car Builders	1,476	1,208	6,413
Railroad Shops	920	1,358	5,580

The **Burlington Refrigerator Express Company** has ordered from its own shops 150 40-ft 50-ton steel "RS" refrigerator cars to be equipped with meat rails.

The **Fruit Growers Express Company** has authorized construction of an additional 200 40-ft 50-ton "RB" insulated bunkerless refrigerator cars. These are in addition to the 300 cars reported in *Railway Age*, September 6, page 64.

The **Pennsylvania** has ordered 1,000 50-ton box cars from its Altoona, Pa., shops. Construction of the cars—of which 600 are to be 40½ ft long and 400 are to be 50½ ft long—is to begin about January 1, with delivery expected to be completed by next April.

LOCOMOTIVES

The **Soo Line** has ordered 34 diesel units from three builders at a total cost of $4,697,635. Ordered from the Electro-Motive Division of General Motors Corporation are 11 road-switchers, seven general-purpose units—all of 1,750 hp—and eight 1,200-hp switchers, at an aggregate price of $3,818,715. The American Locomotive Company will build four 1,000-hp road-switchers at a cost of $465,520, and Fairbanks, Morse & Co. will build four 1,200-hp switchers at a cost of $413,400. The **Wisconsin Central,** operated by the Soo Line, has ordered 24 locomotives from EMD at a total cost of $3,679,325. They include 10 1,750-hp road-switchers, five 1,750-hp general-purpose units, one 1,750-hp general-purpose unit equipped with dual controls, and eight 1,200-hp switchers.

SPECIAL

The **Chicago & North Western** has purchased 22 sets of mobile radio equipment to be installed on switch engines at Chase yard, Milwaukee. The equipment, which includes converters for operating the 117-volt a-c radio from 64 volts d-c, was ordered from Westinghouse Electric Corporation.

The **Great Northern** has purchased 19 sets of mobile radio equipment to be installed on electric locomotives operating between Wenatchee and Skykomish, Wash. The equipment, which includes converters for operating the 117-volt a-c radio from 64 volts d-c was ordered from the Westinghouse Electric Corporation.

(*More news on page 17*)

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Current Publications

BOOKS

INDUSTRIAL TRAFFIC MANAGEMENT, by Newton Morton and Frank H. Mossman. 558 pages. Ronald Press Company, 15 E. 26th st., New York 10. $6.50.

Although this book is designed to meet the basic requirements of courses in industrial traffic management being offered in colleges and universities, the authors recognize that many students taking the courses are not going to be traffic men; they are prospective business men.

The material is presented primarily from the standpoint of the shipper. It acquaints the student with the organization of a traffic department, and explains the development of freight classifications and the structure of class and commodity rates. Carrier services and routing are thoroughly treated, with particular attention given to contract and private motor carriers. Important aspects of loading, packing, marking, storage and warehousing operations are covered, as well as problems in connection with passenger traffic, freight documents, and the handling of claims. Contained in appendices are a glossary of traffic terms and abbreviations, a discussion of the different kinds of freight rates, a history of the development of traffic associations, and the provisions contained in the Bill of Lading Act.

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ARID DOMAIN; THE SANTA FE RAILWAY AND ITS WESTERN LAND GRANT, by William S. Greever. 184 pages, maps. Stanford University Press, Stanford, Cal. $4.

Methods the Santa Fe Pacific used to administer 13,000,000 barren acres in northern New Mexico and Arizona, earned under a congressional charter when the area was spanned by rail, are examined by Dr. Greever.

This is the first study to be made of a grant in arid territory. Most Eastern land grants consisted of fertile habitable land suitable for large-scale colonization, very different from the Santa Fe's stretches of low mesas, erosion valleys, dry washes, and stands of yellow pine and Douglas fir. The book is devoted to the special and serious problems the Santa Fe encountered in administration of its grant from the time it was earned in the 1860's by the Atlantic & Pacific. More than three million acres were given by the A&P to its two parent lines, the Atchison and the Frisco, to pay off debts.

From its acreage, it thus earned about 30% of the cost of construction. The real profit from the grant came after 1897, when the Atchison purchased the bankrupt A&P, and turned 10,239,128 acres over to the manage- of the Santa Fe Pacific.

The Santa Fe's first important act was to commence a series of land exchanges intended to solve difficult problems.

Odd-numbered land sections within Indian reservations and forest reserves were exchanged for lieu rights, which the railroad's customers used to pick land located mostly outside the grant area.

The difficulties and complications encountered were manifold. Where national forest land was involved, there was opposition from ranchers and farmers, and skepticism from the Secretary of the Interior. In the first Zuni transaction the railroad became involved in politics when a government mistake allowed "boomers" to homestead on land the company wished. Dr. Greever also describes in detail problems encountered in selling land for grazing and the problems which were solved in regard to leasing.

He concludes that the grant was managed "with strict honesty, showing due consideration for the welfare of the public in general." The supervising railroad commissioners secured a good profit for the company, he says, and also made a real contribution to the economic development of New Mexico and Arizona.

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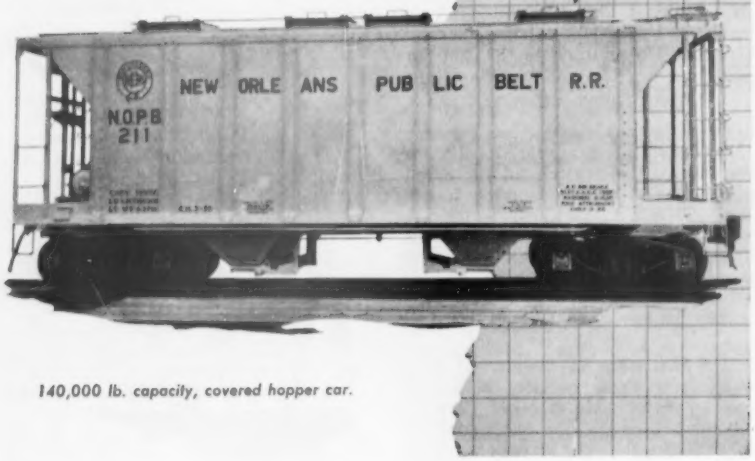


140,000 lb. capacity, covered hopper car.

Marks the Spot

where *Your* Cars take a Terrific Beating

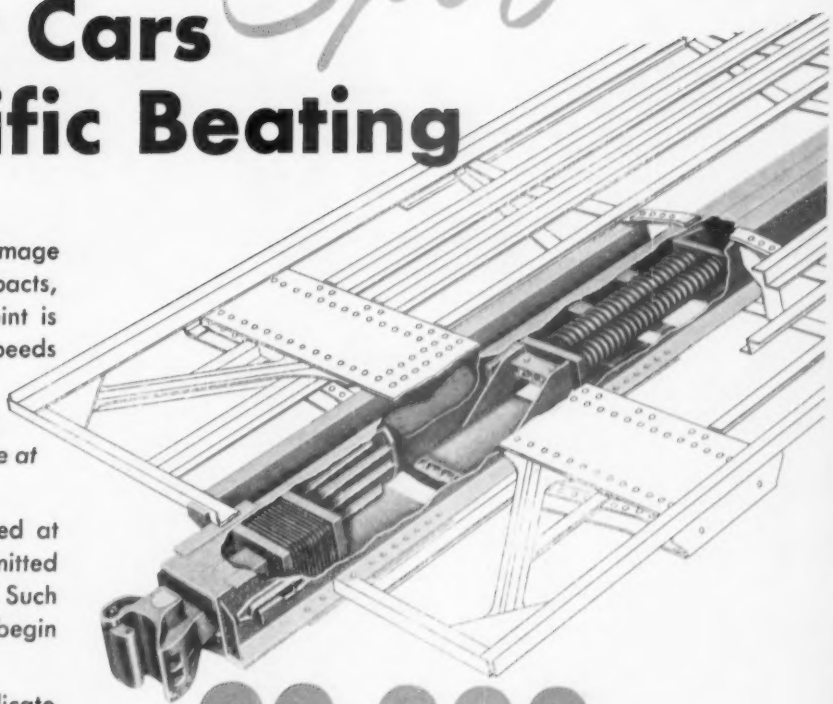
As all railroad men know, car and lading damage starts when, from switching and similar impacts, draft gears go solid. They know that this point is reached with conventional cars at coupling speeds of 4 to 5 mph.

What they may not know is that *more than 75% of coupling impacts have been found to be at speeds in excess of 5 mph.*

When a loaded friction gear car is coupled at speeds in excess of 4 to 5 mph, forces transmitted to car structure exceed the yield point of steel. Such impacts do more than damage a car . . . they begin to destroy it.

Further, checks of bad-order car reports indicate that approximately 50% of all freight car running repairs are caused by excessive impacts.

Herein lies the sheer economics of better cushioning . . . here are the dollars and cents reasons why every railroad should initiate a program *now* of equipping all new freight cars with the Waugh High-Capacity Cushion Underframe.



90,000 ft.lbs.
of protection!

WAUGH EQUIPMENT COMPANY

420 LEXINGTON AVENUE • NEW YORK 17, N. Y.
CHICAGO — ST. LOUIS
Canadian Waugh Equipment Company, Montreal

Center filler-rear draft lugs-center plate, one steel casting welded *integrally* into the bolster-center sill connections... International's *corrective design* for an *all*-welded underframe which has a history of *NO FAILURES!*

International's *corrective design* to eliminate side and end failure—an integral 3/16" W-section corner post, shorter span end side sheet and side post.

Underframe, sides and ends become an integral unit.

International's CORRECTIVE DESIGN

C & O

65095

CAPY. 100000

LD.LMT. 124300

LT. WT. 44500

W. STEEL WHEELS

SPOKE TRAVEL

International STEEL COMPANY

RAILWAY DIVISION EVANSVILLE 7, INDIANA

THERE'S A NEW PRECISION IN FREIGHT CAR CONSTRUCTION

Safety

August Accidents

The Interstate Commerce Commission has released its Bureau of Transport Economics and Statistics' preliminary summary of railroad accidents for August and the first eight months of this year.

The compilation, subject to revision, follows:

Item	Month of August 1954	Month of August 1953	8 months ended with August 1954	8 months ended with August 1953
Number of train accidents*	630	817	4,949	6,059
Number of accidents resulting in casualties	35	38	305	353
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	115	112	579	670
Injured	94	104	611	674
Passengers on trains:				
(a) In train accidents*				
Killed	4	..	4	20
Injured	79	18	247	433
(b) In train-service accidents				
Killed	5	2	11	15
Injured	181	162	1,185	1,199
Travelers not on trains:				
Killed	..	1	2	5
Injured	67	69	543	522
Employees on duty:				
Killed	14	23	136	204
Injured	1,444	1,794	10,654	13,115
All other nontrespassers:**				
Killed	101	115	869	1,016
Injured	349	375	3,200	3,431
Total—All classes of persons:				
Killed	239	253	1,601	1,930
Injured	2,214	2,522	16,440	19,374

* Train accidents (mostly collision and derailments) are distinguished from train-service accidents by the fact that the former caused damage of $350 or more to railway property. Only a minor part of the total accidents result in casualties to persons, as noted above.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossings casualties *for all classes of persons, including both trespassers and nontrespassers*, were as follows:

Persons:				
Killed	87	101	800	942
Injured	215	223	2,117	2,246

Supply Trade

Pressed Steel Car Now U. S. Industries, Inc.

The Pressed Steel Car Company, which recently announced permanent closing of its freight car building facilities (*Railway Age*, June 7, page 16, and June 21, page 11), has formally changed its name to U.S. Industries, Inc. The change had been under consideration for more than a year, John I. Snyder, Jr., chairman and president, said.

T. A. Horn has been appointed service manager of **Fairmont Railway Motors, Inc.**, at Fairmont, Minn., to succeed **Carl W. Brhel**, retired.

Certain assets of the **Torcon Corporation,** at Ashtabula, Ohio, have been acquired by the **Clark Equipment Company.** Among acquired assets are inventories, engineering designs and products, tooling, trademarks

(*Continued on page 38*)

VENEZUELA'S proposed new railroad system is indicated on this map, as are the country's actual and potential sources of traffic.

ROADBED being prepared for new single-track railroad between Puerto Cabello and Barquisimeto.

VENEZUELA STARTS $800,000,000 RR PROGRAM

Venezuela has begun a 10-year, $800,000,000 railroad-building program that calls for laying 2,640 miles of standard-gage double- and single-line track.

First link in the proposed integrated railroad system is under construction between Puerto Cabello and Barquisimeto, the country's third largest city. Construction crews started work at each end of the line last May and are expected to meet this fall. Track will be laid in 1955.

This new link later will connect at Barquisimeto with a double-track standard-gage line to be laid between Caracas, the national capital, and the Andean regions within the next few years. From Sabana de Mendoza, where the double-track system stops in the Andean region, a single-track line will continue to San Cristobal, almost on the Colombian border. Total distance between Caracas and San Cristobal is 700 miles.

In another phase of the overall program, a single-track line will penetrate the remote and mineral-rich eastern part of Venezuela north of the Orinoco river. Two spur lines of the new system will tap the vast llanos south of the mountains rising from the Caribbean shore. One will run to Ciudad Bolivar, largest city on the river, and the other will cross several hundred miles of flat land to reach the upper Orinoco at Caicara.

Maracaibo, the oil city, eventually will be connected with Caracas by a line tapping into the double-track route between Caracas and Sabana de Mendoza from Altagracia.

GATX tank car service station

Steam rack where 24 tank cars can be cleaned at one time

GATX tank cars are never more than a few hours away from "home base."

More than 30 General American repair shops give the 47,000 GATX tank cars their periodic steam-cleaning, lubrication, maintenance and inspection. Specialized equipment and parts inventories used in building more than 200 types of tank cars are also available for the repair and maintenance of the GATX fleet.

General American's experience gained in designing, building and operating railroad car fleets and shops for over 50 years gives shippers more dependable service for transporting liquids in bulk and greater flexibility of car types.

Car repair shops throughout the U.S.A.

GATX GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South La Salle Street, Chicago 90, Illinois
Offices in principal cities

Needed—More People On the Rate Problem

The first requisite for economic progress is the existence of laws which are generally understood and obeyed. When the law is uncertain, business planning is also, of necessity, uncertain; and is inclined to "sit tight" and "pull in its horns." It is not an atmosphere favorable to risk-taking or to progress. Isn't this the situation which prevails in the area of railroad freight rates? There are no longer the same generally understood and accepted principles, as there used to be, about how freight rates *ought* to be constructed—hence nobody is able to predict with assurance just how any specific rate dispute is going to turn out. Such conditions not only do not serve to hold and attract maximum traffic—they also do not promote confidence and constructive planning for progress and expansion in an industry afflicted with such uncertainty.

It is no reflection on the competence of railroad traffic officers or commerce lawyers to observe that conditions which now confront them—in their effort to hold onto, and increase, traffic and revenues—are conditions which go beyond their professional experience. Their situation is, indeed, not greatly different from that of railroad mechanical departments when they were suddenly deprived of their steam locomotives and, instead, were given diesels to service and maintain.

That the mechanical department adjusted itself to the revolutionary change in motive power, with no more difficulty than it had, was due primarily, perhaps, to two things—(1) full understanding by chief executives of the problems the mechanical departments faced and cooperation in dealing with them, and (2) extensive educational and consulting services provided by the diesel manufacturers, to help mechanical officers and personnel make the necessary transition.

It is doubtful whether many chief executives have, so far, informed themselves personally about the rate problem to the degree that most of them got into the details of the problems of adaptation of railroad practices to the diesel locomotive. And, unfortunately, in the rate-making business, there are no obliging and well-informed manufacturers who are on hand to provide educational and consulting services, which were so helpful in smoothing the way for railroad adaptation of railroad mechanical departments to the diesel locomotive.

There are "outside" people who could, undoubtedly, provide a good deal of help in accelerating the ascertainment and adoption of new and sounder principles of rate-making—just as the "outside" manufacturers helped with the diesel. But, unlike the diesel manufacturers, these "outsiders" who might have something to offer in the solution of rate problems (economists, consulting engineers, and market analysts) cannot come in and help unless they are invited and encouraged to do so.

The fact is that it was not just the practical rate men alone, but also the outside "theorists" who brought about the acceptance of the standard "what-the-traffic-will-bear" theory of railroad rate-making. It was the practical traffic and rate men, of course, who made the initial discovery that it was feasible to charge more for moving a ton of machinery than a ton of wheat; and more per ton-mile for a 100-mile haul than for one of 200 miles. However, it was not the practical rate men, but the economic theorists, who put the seal of legitimacy and respectability on such differentials in rate-making practices. The practices that these "outsiders" found to be legitimate came to be accepted as such by regulatory and legal authorities—not because railroad people found them advantageous—but because these "outsiders," who had no selfish interest at stake, proclaimed the fact that these practices were in harmony with the public interest. Similar objective and skilled analysts need to be attracted to a study of the present rate situation of the railroads; and to help discover and spell out the correct economic principles which apply to present-day conditions in transportation. Until they do this, there can hardly be a rule of law, instead of a rule of chaos, in this all-important aspect of the railroad business.

In short, the problem which faces the railroads in, once again, getting a system of rates "that will move the business" is two-fold. It includes, not only (1) the discovery by analysis and experiment of the kind of rates that will achieve the desired result, but also (2) establishing the fact that the new approach to rates is in harmony with sound economic principles and with the public interest. This is a large order. To bring it to realization without a ruinous loss of time and money will require the enlistment of a lot more competent people, both inside and outside the railroads, than are now working on it.

Questions and Answers FOR THE TRANSPORTATION DEPARTMENT

Are all leased refrigerator cars to be considered as if they were owned?

No; only those for fresh meat and packing house products.

Under Note 1 to Demurrage Rule 1, Section B, is it understood that the only refrigerator cars on which lease can be considered equivalent to ownership are those for fresh meat and packing house products, as provided in Rule 36 of the Perishable Protective Tariff?

At one of its meetings last year, the Eastern Association of Car Service Officers answered this question as follows:

Yes. Demurrage Rule 1, Section B, in conjunction with Note 1 thereto, has sometimes been interpreted to mean that all refrigerator cars under lease to a consignee are exempt from demurrage while standing on a track owned or leased by the lessee of the cars. Such, however, is not the case.

•

How much demurrage time is allowable in a case like this?

Standard free time of 48 hours.

The following question was carried in our issue of July 5: An industry performing its own switching service received a loaded car at 10 a.m. March 1 and finished unloading it at 4 p.m. March 8. The consignee notified the railroad that the car would be used for outbound loading. When the car was partly loaded the order was cancelled, and the car was unloaded and delivered to the railroad empty at 5 p.m. March 11. To what free time is the industry entitled?

(Our reply, which was adapted from that of the Demurrage Committee of the Eastern Association of Car Service Officers, said the shipper was allowed 48 hours, and that one transaction should be entered on the books. Authority quoted was Item 20-b, as well as Rule 3, Section E, of Agent Schuldt's freight tariff 4-Y.)

A dissenter says there should be two transactions, and quotes Rule 2, Section A, Paragraph 2, of the Demurrage Tariff as his authority: "When the same car is both unloaded and reloaded, each transaction will be treated as independent of the other; except that, when loading is begun before unloading is complete, free time for loading shall not begin to run until the first 7 a.m. after unloading is completed. This will also apply to industries performing their own switching service, in which case the industry must notify the railroad date and time car was unloaded promptly after car is unloaded." Since the car, our dissenter says, was not used in transportation service, it was subject to Rule 6, Section B, with no free time allowance, with time being computed from time of placement for loading.

S. R. Jennings, manager of the Eastern Demurrage & Storage Bureau, was chairman of the committee which made the EACSO report. He sticks to his guns, and has replied in part as follows:

"Item 20-b . . . reads: 'The disposition at point of detention determines the purpose for which a car is held and the rule applicable thereto, except where there is a specific tariff provision to the contrary.'

"In the instance under discussion a car was delivered loaded to an industry performing its own switching, the car was taken in the plant by the industry's power and the final disposition of the car by the industry after it was unloaded was to return the car empty to the interchange track. Therefore, the entire detention to the car from the time it was delivered by the railroad to the industrial interchange track until the car was returned empty to the same or another interchange track by the industry should be included in the unloading demurrage account. . . ."

Mr. Jennings goes on to cite an agreement between the National Industrial Traffic League and railroads upon application of the tariff:

"Cars delivered upon interchange tracks loaded, used by the industry in intermill service after the unloading has been completed, and returned to the interchange track empty, are entitled to 48 hr free time for unloading and the total detention may be included in the consignee's unloading average agreement."

Rule 6-b, Mr. Jennings states, has no application in this case. He points out that since there is no cross reference between Rule 2, Section A, Paragraph 2, and the above-mentioned portion of Rule 6, it did not seem to him that the tariff's framers thought a car subject to Rule 2 (above) would be subject to Rule 6 (above). Mr. Jennings further states that, several years ago, the AAR Demurrage Committee expressed the opinion, "with respect to industries performing their own switching service to and from industrial interchange tracks, that the time cars are used in intraplant movements should be added to the time cars are held for loading and unloading, for which 48 hr free time is allowed."

The exception to this rule was "with respect to cars delivered to the industry empty, which it removes from the interchange track and subsequently returns empty, on which no free time should be allowed, with Demurrage Rule 6-b being applied."

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CONDUCTED BY G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, *Railway Age*, 30 Church Street, New York 7.

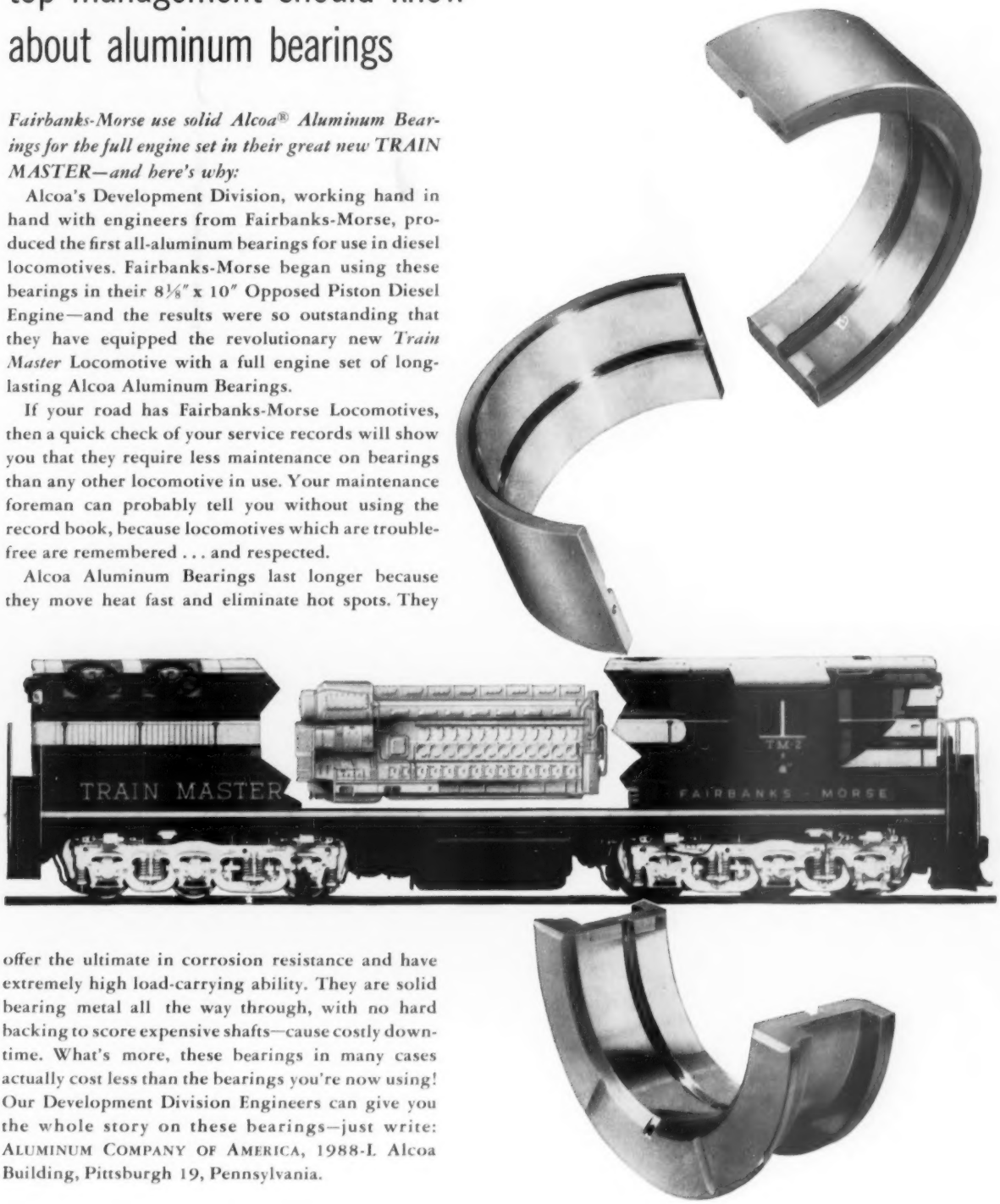
What every railroad's top management should know about aluminum bearings

Fairbanks-Morse use solid Alcoa® Aluminum Bearings for the full engine set in their great new TRAIN MASTER—and here's why:

Alcoa's Development Division, working hand in hand with engineers from Fairbanks-Morse, produced the first all-aluminum bearings for use in diesel locomotives. Fairbanks-Morse began using these bearings in their 8⅛" x 10" Opposed Piston Diesel Engine—and the results were so outstanding that they have equipped the revolutionary new *Train Master* Locomotive with a full engine set of long-lasting Alcoa Aluminum Bearings.

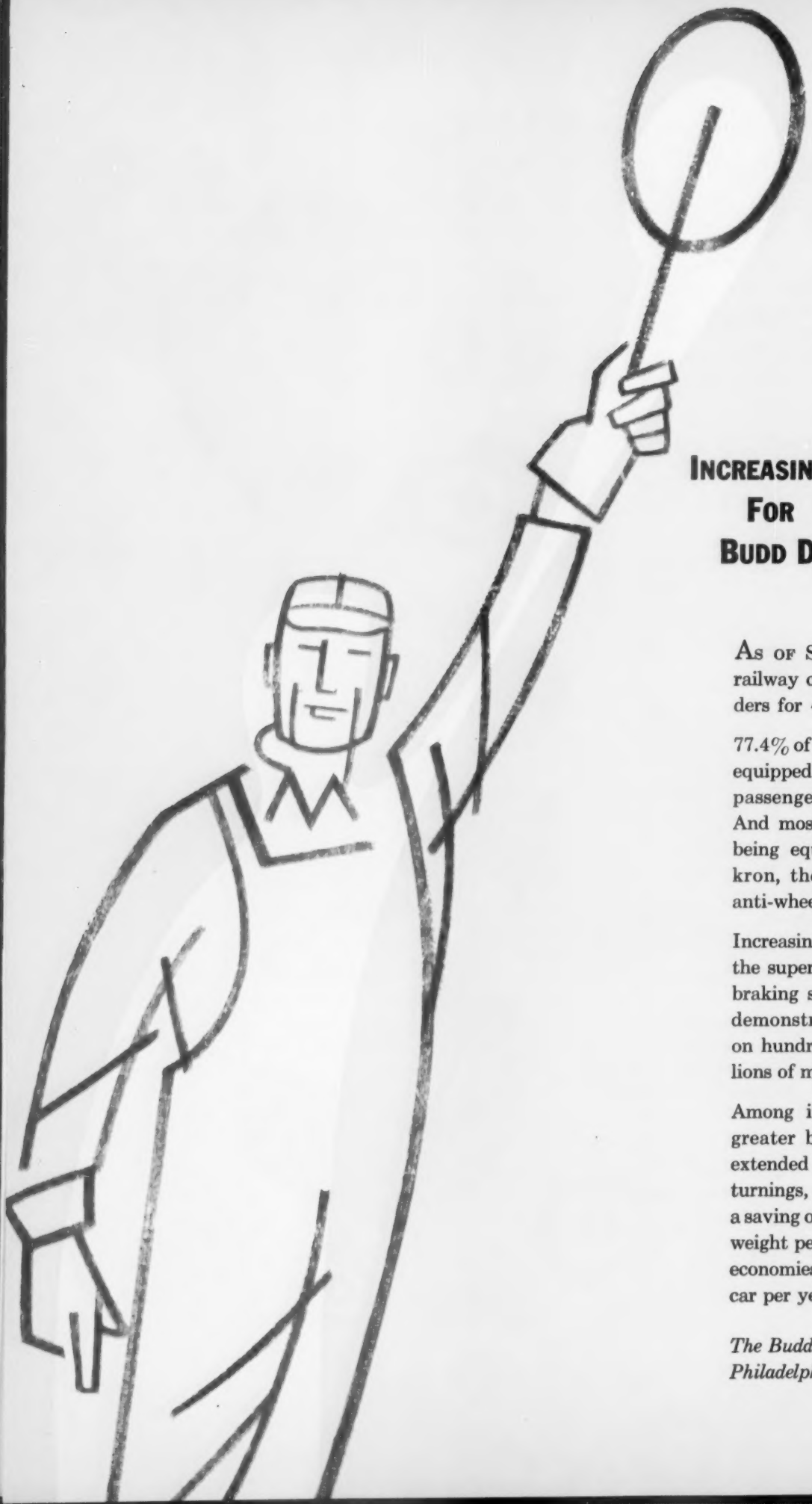
If your road has Fairbanks-Morse Locomotives, then a quick check of your service records will show you that they require less maintenance on bearings than any other locomotive in use. Your maintenance foreman can probably tell you without using the record book, because locomotives which are trouble-free are remembered . . . and respected.

Alcoa Aluminum Bearings last longer because they move heat fast and eliminate hot spots. They offer the ultimate in corrosion resistance and have extremely high load-carrying ability. They are solid bearing metal all the way through, with no hard backing to score expensive shafts—cause costly down-time. What's more, these bearings in many cases actually cost less than the bearings you're now using! Our Development Division Engineers can give you the whole story on these bearings—just write: ALUMINUM COMPANY OF AMERICA, 1988-L Alcoa Building, Pittsburgh 19, Pennsylvania.



ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA



INCREASING PREFERENCE FOR BUDD DISC BRAKES

As of September 1, 1954, railway car builders had orders for 469 passenger cars.

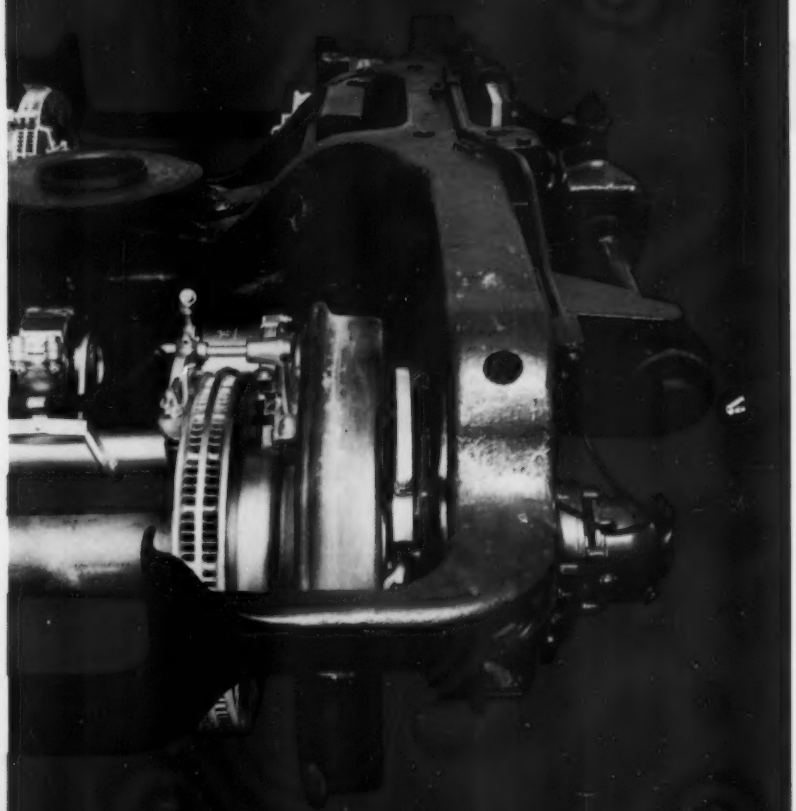
77.4% of these cars are being equipped with Budd railway passenger car disc brakes. And most of them are also being equipped with Rolokron, the Budd-developed anti-wheel slide device.

Increasing recognition of the superiority of the Budd braking system is based on demonstrated performance on hundreds of cars in millions of miles of service.

Among its advantages are greater braking efficiency, extended wheel life between turnings, no heat checking, a saving of 2000 pounds dead weight per car, maintenance economies up to a $1000 per car per year.

The Budd Company,
Philadelphia 15.

BUDD DISC BRAKE



Budd

PIONEERS IN
BETTER TRANSPORTATION

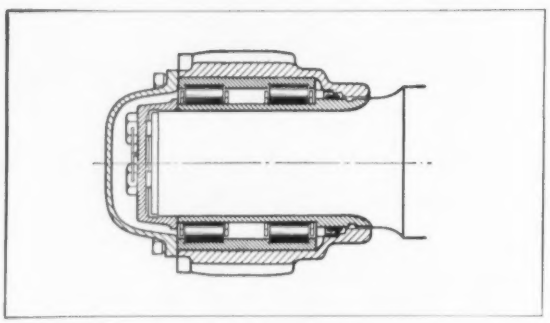
BOWER-FRANKLIN ROLLER BEARINGS

RIDE THE "PENNSY"

Pennsylvania Railroad makes installation on ten Class H-30-A Covered Hoppers

Few types of modern railroad rolling stock present a tougher bearing problem than cars in cement or sand service. In its search for a solution, the Pennsylvania Railroad has equipped ten cars used in silica sand service with Bower-Franklin Roller Bearing Journal Boxes. The cars are 70-ton covered hoppers, of the railroad's Class H-30-A, built in 1952. Journal boxes are of the pedestal type; bearing size is 6″ x 11″.

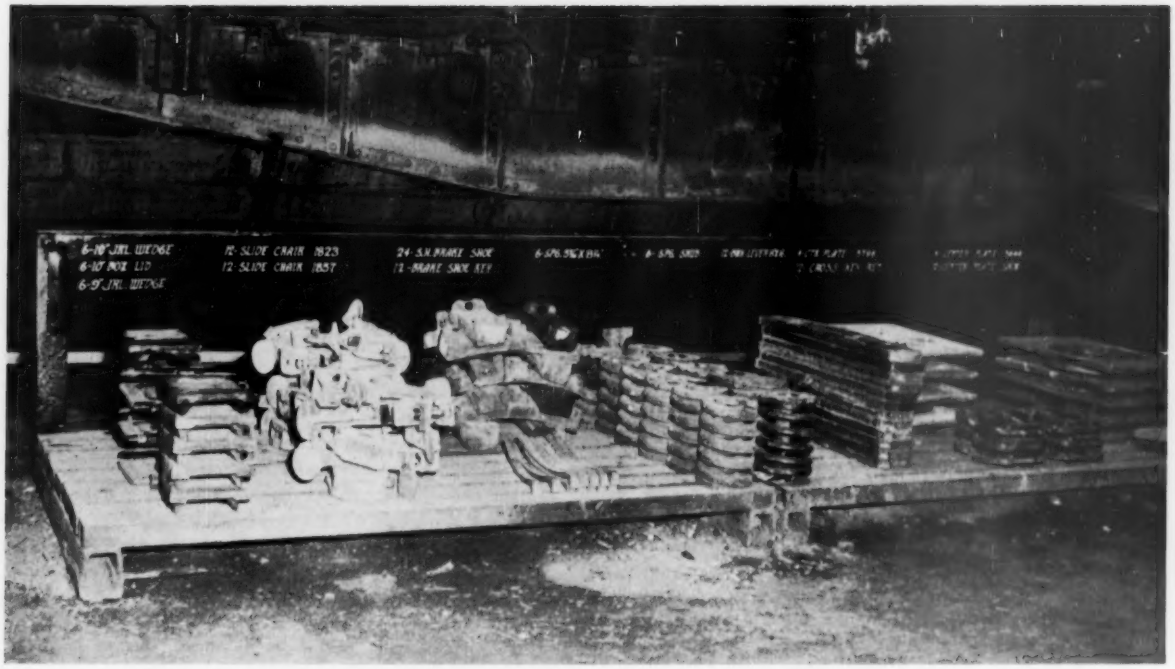
We are very proud of the opportunity to help this progressive railroad in its search for answers to the hotbox problem. Let us know if we can serve you in a similar way.



The Bower-Franklin Journal Box uses straight roller bearings made by the Bower Roller Bearing Company of Detroit. The bearings are grease lubricated and permit free lateral movement of the axle up to ½-inch. The ruggedly-built, one-piece housing is identical, top and bottom; can be reversed in the pedestal for extra long life.

FRANKLIN BALMAR CORPORATION

FRANKLIN BALMAR CORPORATION
WOODBERRY, BALTIMORE 11, MARYLAND
CHICAGO OFFICE: 5001 North Wolcott Ave., Chicago 40



PLATFORMS and other clearly marked storage media are used inside car shops and soon will be installed in Cotton Belt diesel shops.

How to Handle Repair Parts . . .

• Providing maximum maintenance protection
• Simplifying checking and ordering material
• Keeping inventories to a minimum

During the past two or three years the Cotton Belt has inaugurated substantial changes in that phase of its mechanical department operation concerned with car and diesel spare parts at principal outlying mechanical repair points. These changes have resulted in a smoother flow of parts for repairs to cars and locomotives, at the same time effecting a drastic reduction in inventories.

The program—planned and executed jointly with stores and purchasing departments—has, since 1951:

1. Reduced car department materials from an average of 3.73 to 2.15 months supply, a reduction of 42%. The value of car department material inventory has been reduced several thousand dollars, notwithstanding price increases since 1951.

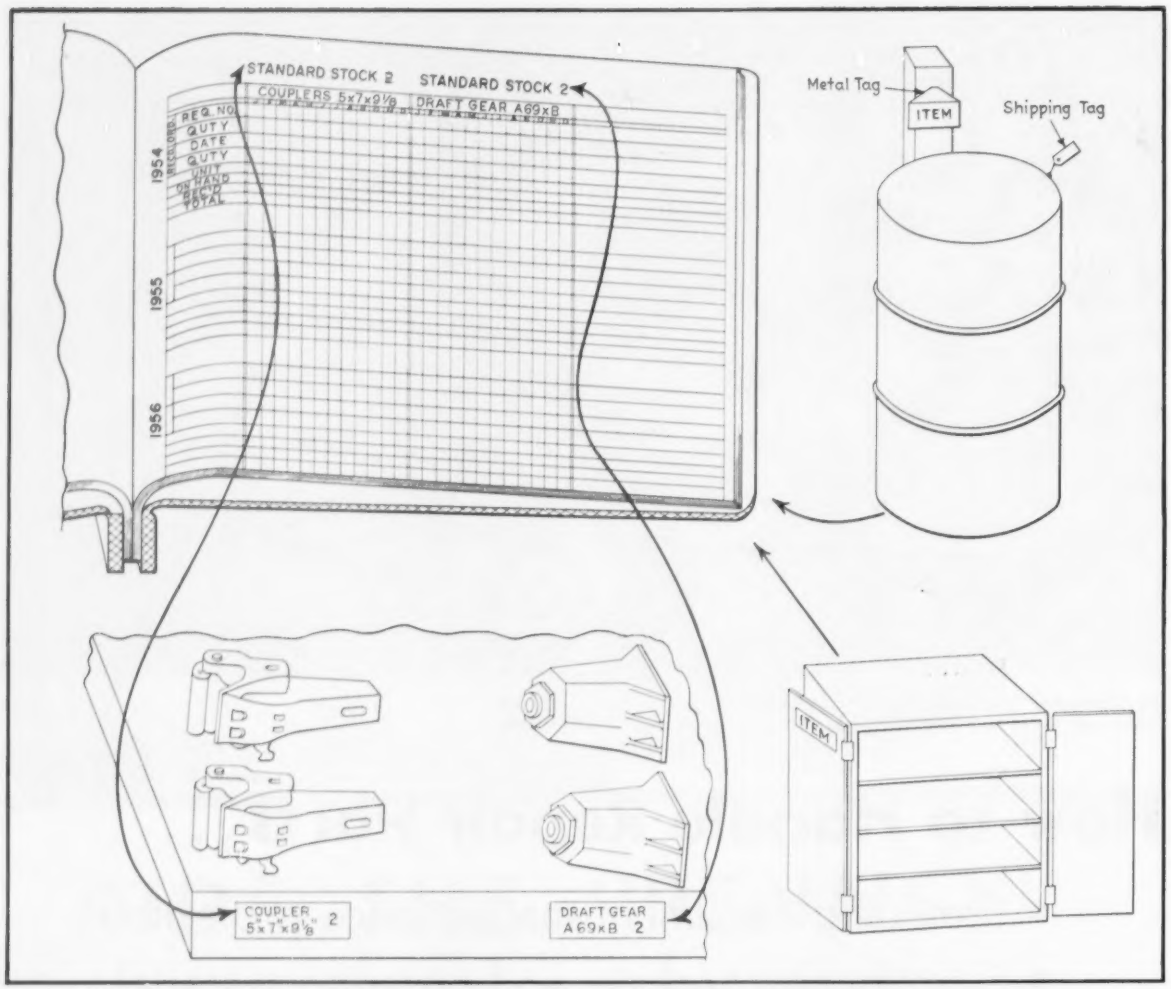
2. Reduced the value of diesel protective material from $1.68 per horsepower in July 1951 to 55 cents per horsepower at present. Due to the cotten Belt's proximity to builders' supply houses, it has not been necessary to follow in all cases builders' recommendations as to the quantity of material stocked.

3. Greatly simplified the storing and checking of all parts. This simplification—while but one several major benefits—would alone seem to justify the program from the mechanical man's standpoint. It was accomplished by labeling each platform, bin, cupboard, locker, etc., with the name and quantity of each item stored.

With the Cotton Belt arrangement it is a simple matter for a foreman at an outside repair point, other than

HOW ALLOWABLE QUANTITIES MATERIALS ARE LISTED

Type of Storage	*Type of Marking*
Platform	Black metal strip with white lettering
Bins (Outdoor)	Metal tags
Bins (Indoor)	Typed label in holder
Cupboards	" " " "
Lockers	" " " "
Barrels, Drums and Other Metal Containers	Stored in specific, marked location



REGARDLESS of the nature of the item stored or the method of storage, each item is plainly described on the storage medium (platform, bin, barrel, etc.) along with the quantity permitted to be stored at that location. The description of the item and the authorized quantity must be the same as listed in the standard stock book.

principal stores at Pine Bluff and Tyler, to check his spares and to order whatever quantity is necessary to bring his stock up to the number allowed. He merely has to compare the number of units on the platform (which tells him what he has) with the corresponding stenciled number (which tells him what he is permitted to have). The difference between the two is what he must order from the stores department to bring the mechanical department stock to standard.

It is the responsibility of the outside-point mechanical foreman, and his clerk, to see that material is properly received and disbursed to protect all maintenance requirements.

Checking Stock Becomes Routine

The new storage arrangement has a second big advantage in that anyone can check the material on hand —whether or not he is familiar with the different items and their names. It is not necessary to tie up experienced personnel for routine checks of spares on hand. In actual practice, the checking is normally done either by a mechanical department clerk or a foreman, depending on the repair point and its size.

Material for outlying points (those other than Pine Bluff or Tyler) is charged out to the mechanical department when shipped. Handling, storing and keeping the proper quantities on hand at these outlying points thus become the responsibility of the local mechanical supervisor. Periodic inspections are made by mechanical department traveling foremen and traveling storekeepers to see that all materials are stored in the proper quantity and manner. Insofar as possible, the proper quantity of a given item at a given point is the amount used in an average month.

Two practices avoid complicating the paper work required. When a car man or diesel mechanic needs a part for repairs, it is obtained without the necessity of issuing a disbursement ticket. No attempt is made to record just what time any particular item is used, or on what particular car or locomotive. Material for replacement is ordered weekly or monthly following a check of material on hand against authorized standard stock lists.

Maintenance records on either car or locomotive repairs are not kept in detail. Replacement parts are merely charged to freight or passenger cars when shipped from the general store, with no attempt made to break the classification down into type of car or class. In diesel work the replacements are not charged to an individual unit but to a particular class of diesel power only, such as an Alco 2,000-hp passenger unit, an Electro-Motive F-7, etc.

Plan Is Flexible

It was realized when this plan was set up that experience and changing conditions would indicate that the stock of some items should be increased, others decreased, and that new items should be added from time to time. Therefore, local forces can request an increase in the stock of an item or the addition of new materials to the standard stock list. Inactive items on the list can be recommended for reduction or elimination by either local supervisors or the traveling inspectors.

Requests for changes in the standard stock lists go to the general storekeeper, who submits them with a letter to the appropriate mechanical officers, such as the diesel supervisor or the master mechanic, for approval. These requests for changes in the allowable inventory are the only element in the procedure requiring intermediate approval; all routine orders to bring stock to standard go only to the storekeeper. If items requisitioned on regular standard stock requisitions cannot be supplied, the storekeeper returns a special form which lists items on the requisition that were cancelled, why they were canceled, and how to appeal the cancellation to get an item restored.

An interesting innovation in the Cotton Belt operation is the use made of local stores and supply houses at the general store location. Certain supply companies that stock everyday items of shelf hardware offer attractive prices to the railroad. Through this arrangement and the use of a company truck (which makes frequent trips to pick up material from these supply companies), it is only necessary to requisition the material that is needed and expected to be used in the near future.

At Pine Bluff and Tyler the stores department carries the principal inventory and the car and diesel departments carry actual working stocks only of small items like gaskets, bolts and washers. Large protective or stand-by items, such as traction motors and main generators, are not carried in general store stock, but are charged to capital account when received. The stores department at Pine Bluff and Tyler carries rewinding kits for the large motors and generators, and spare parts for such other major units as draft gears, contactors, and relays.

Branch warehouses of the locomotive builders play a key role in the inventory control program. Parts ranging from lubricating oil pumps to crankshafts are not

HOW MECHANICS GET MATERIALS

Cotton Belt practice provides three ways of replacing material kept as a working supply for repair men:

1. At Pine Bluff and Tyler, the mechanical foreman checks small working stocks stored by the mechanical department weekly or more often. As the check is made he orders what is needed to make up the difference between the amount of each part on hand and the amount that should be on hand as indicated by the information stenciled where the material is stored. The order made out by the foreman requires no further approval for issuance of the material. A laborer takes the order to the storekeeper, receives the material, and places it in the proper place.

2. At larger outlying points (e.g., East St. Louis or Texarkana), a mechanical department clerk is in charge of material records. He checks the material monthly or weekly (depending on activity) and orders what is needed direct from the general storekeeper at Pine Bluff or Tyler. No intermediate approval is required.

3. At small outlying points the procedure is about the same except that the foreman has no clerk and no stock book record. He does his own order writing, using as a guide the standard stock list and stencils.

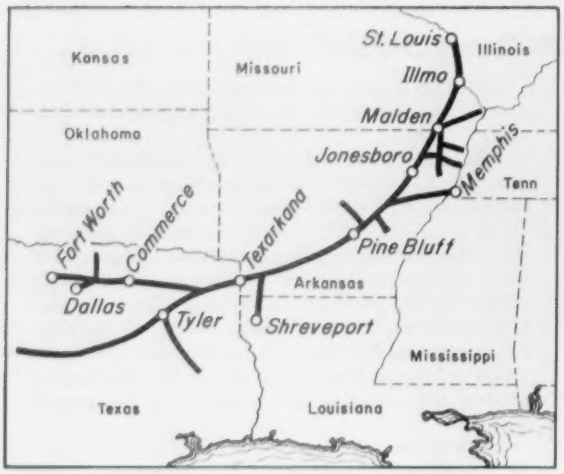
With any of these procedures the stores department at Tyler or Pine Bluff checks the order to see that it will not, when filled, bring the inventory beyond that allowed. This is done simply by adding to the quantity on hand (shown on the requisition) the number ordered and seeing that the total does not exceed the allotment. Traveling mechanical inspectors make spot checks to see that the actual quantity on hand of an item corresponds to that listed on the requisition.

HOW THE COTTON BELT ALLOTS DIESEL AND CAR PARTS

(Four representative points used as examples)

Location	Cars Handled * Average Month	Cars to * Rip Track	Value of Car Spare Parts	Diesels Serviced Average Day	Units Assigned for Routine Work up to Annuals	Units Assigned for Gen. Overhaul	Value of Diesel Spares
East St. Louis	52,089	2,057	$ 49,629	13	3	.....	$ 1,725
Illmo	47,834	112	7,456	3 ■	3 ■	.....	620
Jonesboro	53,365	385	10,112	5 ■	5 ■	.....	750
Pine Bluff	86,708	2,186	233,791†	44	44	128	92,325

* All figures are for December 1953
† Includes also materials for about two-thirds of all general repairs to 6,000 cars.
■ Illmo and Jonesboro do necessary work on through power; locally assigned units are serviced during week, maintained over weekends.



The map shows the more important Cotton Belt points where either car or diesel locomotive work is performed. There are, of course, also numerous small points where minor work is done.

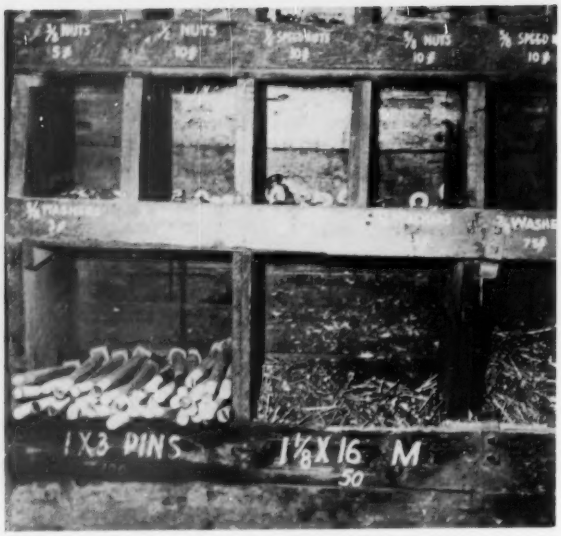
Major car repairs are made at two points—Tyler, Tex. and Pine Bluff, Ark., with the latter handling about two-thirds of the total. Pine Bluff also handles all general repairs to diesel locomotives, and about half of the daily servicing load—an average of about 35 road units, 3 local freight units, and switching power sufficient to protect from 12 to 15 shifts. All routine mileage inspections for road power on the northern district are handled at Pine Bluff, and for the southern district at Tyler.

The Cotton Belt owns about 50 passenger and 6,000 freight and miscellaneous cars. Diesel ownership is 3 passenger units, 85 road freight and road switcher units, and 40 switchers. The latter are scheduled for traction motor overhaul between 400,000 and 600,000 miles based on wheel changes; engine overhaul and main generator repairs at 800,000 miles; and generator overhaul at 1,600,000 miles. Truck changeouts are normally made when units are tied up for other work. On this basis an average of one road unit per month gets heavy repairs at Pine Bluff, with switcher heavy repairs as needed and as they can be sandwiched in between the road units. While the mileages set up for the different repairs may seem substantially higher than most roads attain, the Cotton Belt view is that they overpower trains for speed to a greater degree than is common. Under such conditions, wear per mile should be less.

Outlying points in general handle routine work on switchers up to annual repairs. Heavier jobs are confined to larger points by reassigning switch and local diesels when due for such repairs. All moves to and from such points are made handling local freight trains where such service is performed.

carried in stock by the railroad but are ordered as needed from the St. Louis warehouses. A part ordered by midafternoon one day will be in Pine Bluff at the beginning of work the next day or any point on the railway by the end of the day. When the mechanical department requires an item in a hurry, they handle with the storekeeper, who, in turn, handles with the purchasing agent in St. Louis, to expedite the order and delivery.

Stocks of materials for diesel heavy repairs are not kept in store, but are ordered in advance so deliveries may be coordinated with shopping schedules. If major items that have not been included in requisitions for heavy repairs are found to be defective after diesels



ALLOWABLE quantities of smaller bulk items are indicated in units, pounds or whatever designation is most convenient.

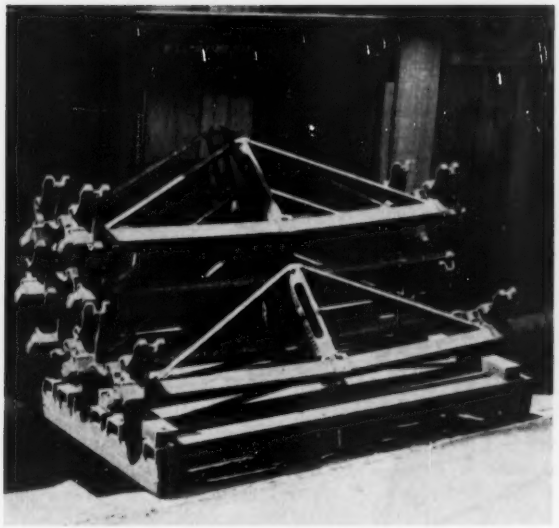
are stripped, the stores and purchasing department advises the diesel builder's warehouse in St. Louis, and these parts are delivered to the Pine Bluff shops the day after they are requested. The proximity of Pine Bluff to the builder's warehouse in St. Louis, plus the effective manner in which the diesel builders cooperate by making prompt overnight shipments, permits diesel repairs in Pine Bluff shops to continue without interruptions.

The first step in inaugurating the new spare parts inventory was a big one. Every item at every point

SUPPLYING OUTLYING POINTS

Pine Bluff is the hub of the entire Cotton Belt material supply system, and is the only point that receives shipments direct from the supplier. Except in emergencies (and for a few things like lumber) Tyler is supplied by Pine Bluff and serves as a central warehouse and distributor for the southern district. Tyler is also one of four places that receives a car of material each week. Prior to the establishment of the material control plan, no place was supplied oftener than twice a month, and most only once a month.

The material car is dispatched to the four major store points on a specified day each week—Tyler on Tuesday, Shreveport Wednesday, Texarkana Thursday, and East St. Louis Friday. Each monthly car sent to smaller points is included in a shipping schedule published in January each year showing the departure date on all these cars for the year ahead. The definite schedule of all the material cars enables the foreman or clerk at any outlying point to know when his car will leave Pine Bluff, so he can get his requisition there in time to have the material ordered on the car. Normally, the Pine Bluff storekeeper can process and load material ordered up to 24 hours before departure.



SOME LARGE bulky items (such as brake beams) are stored by themselves on separate platforms.

SMALLER PARTS used on the rip track are kept in separate bins but grouped conveniently together.

was analyzed to find (1) the quantity in stock, and (2) the quantity used each month. With but few exceptions, the monthly usage of each item at each point became the allowable inventory for that point.

The job of setting up inventories at the different points took six months. It was done by a special committee, appointed by the management, with the assistance of the local forces. The committee consisted of the assistant purchasing agent, the assistant general storekeeper, a traveling car foreman, a traveling mechanical inspector and a traveling storekeeper.

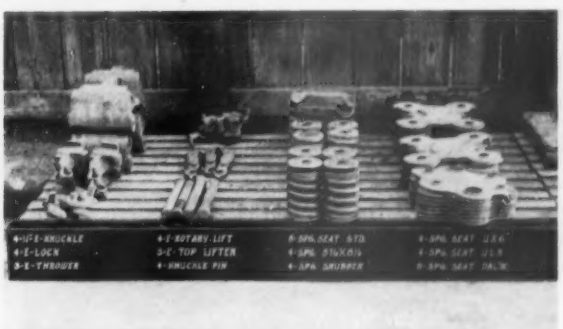
As the five-man committee checked a point to establish allowable inventory, each member would take over one portion of the job and work with a local man who was familiar with the local situation. For example, the traveling car foreman might work with the rip-track foreman, or the traveling mechanical inspector with the local supervisor in charge of diesel repairs.

At the conclusion of the period required to complete the check, the standard stock for each item was set up immediately and any excess was immediately transferred to the central stores point at Pine Bluff or Tyler. Standard stock lists were published for each point, listing the description and quantities to be stocked of the various items in AAR Material Classification Order.

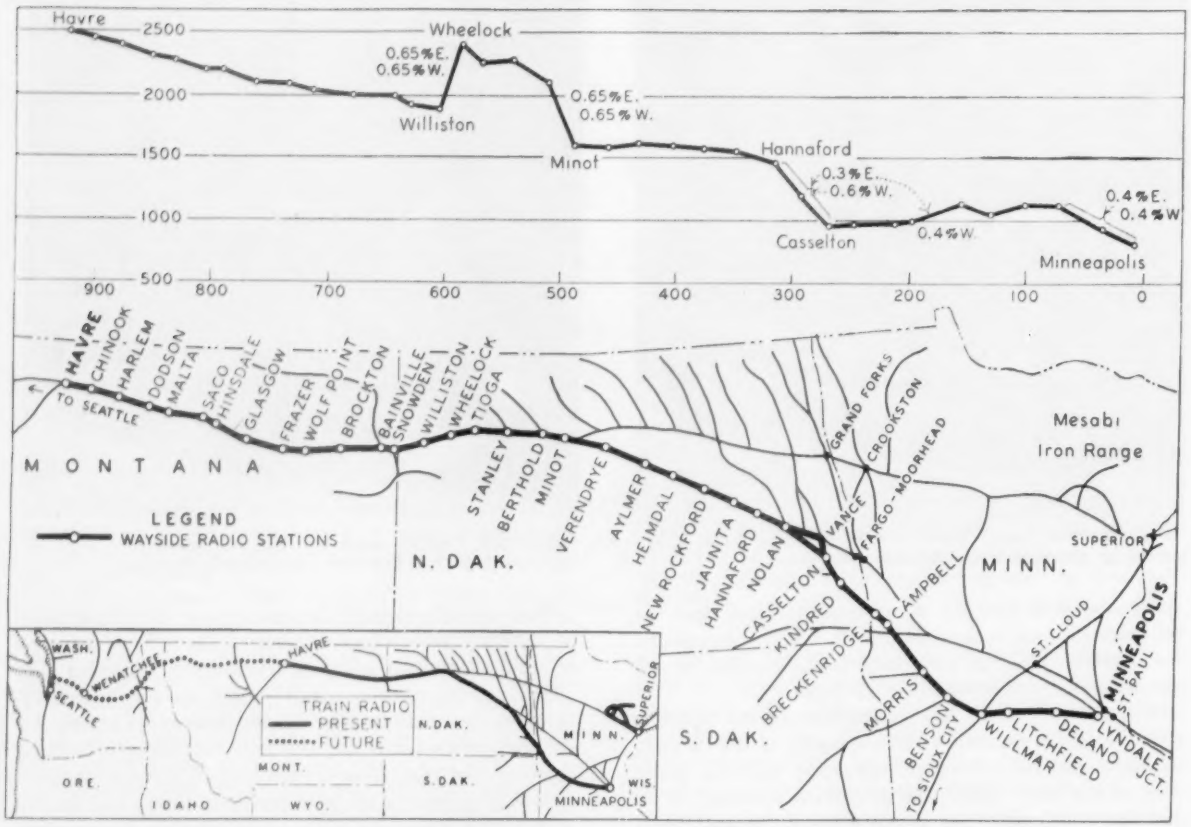
With the adoption of the new system those in charge of outlying points had to abandon long-held concepts of what constituted adequate amounts of protective material, and to confine requisitioning to that necessary to bring materials to the agreed amount as set up in standard stock lists. The adoption of such a procedure required the education of mechanical supervisory personnel in accepting the new inventory levels and in the new requisitioning procedures. Initial objections to the plan were overcome by repeated discussion with mechanical foremen to assure them that they would be furnished with the material needed and no objections would be taken to supplying whatever material might be required.

Success depended on close coordination between the mechanical, purchases and stores departments, with each discharging its individual responsibilities. For the mechanical man, this meant that his inventory was to match the standard stock list, that actual physical check be made before any material was ordered, and that stock books kept by the mechanical department be up to date. Mechanical officers and supervisors feel that the plan has improved car and locomotive maintenance operations, as well as reducing spare parts inventories.

BEFORE the program was inaugurated, locating and checking material was complicated.



AFTER program was begun, processes of keeping tabs on parts was greatly simplified.



How GN Radio Expedites Trains

Two-way radio communication between freight trains and 36 wayside offices helps performance on 906 miles of main line from Minneapolis to Montana

The Great Northern is materially expediting through freight trains by the effective use of radio communications, not only for normal traffic, but particularly in periods of heavy traffic, such as seasonal movements of grain, fruit and oil. This road's recently completed radio installation extends 906 miles from Minneapolis to Havre, Mont., and includes 36 wayside radio stations and radio equipment on the locomotives and cabooses regularly assigned for through freight train service on this territory.

Sixty Meets Daily

Train frequency varies on divisions in this territory. For example, the schedule includes 6 passenger trains, 6 through freights and 2 locals, or 14 trains daily on the 309-mile Williston-Havre section. During the seasonal movement of grain and fruit, extra trains are operated. Eastbound fruit from the state of Washington is handled in solid trains (run as extras), of which 214 were operated in the first 157 days of 1954. Oil trains and grain trains are usually operated as extras. Thus the total number of trains may be 30 or more daily on some sections.

With 16 trains daily (a typical operation), there will be an average of 60 meets on single track territory; viz., 14 meets between through freight trains; 11 meets between through freights and locals; and 33 meets between through freights and passenger trains.

Radio Improves Train Operation

One of the operational advantages of radio on freight trains is the time saved when trains enter and leave sidings, because the conductor can "talk" the train in and out of the siding, thus eliminating guesswork by the engineer when stopping "in the clear" or when "out on the main" and ready to go.

Elimination of delays when making meets results in trains getting over the road in less time, which is reflected in reduced operating expenses. Other advantages include: (1) Immediate and detailed train inspection information can be given to all interested persons; (2) reduction in delay when trains are stopped in emergen-

WHERE INSTALLATION IS LOCATED

This 906-mile radio project covers more than half of the 1,783-mile through route of the Great Northern between St. Paul and Seattle. From Minneapolis west to Havre, the railroad is, for the most part, in open prairie. Except for sections of 0.6 and 0.65 per cent grade, as shown in the profile, the grades are relatively light, and gradually rise from an elevation of 815 ft at Minneapolis to 2,486 ft at Havre. The tonnage rating of the three-unit diesel road freight locomotives is 5,000 tons over the 0.65 per cent ruling grade between Williston and Wheelock, N. D., (22 miles) eastward and between Minot and Berthold, N. D., (22 miles) westward. For the rest of the territory the tonnage rating of these road locomotives is 6,750 tons.

Of the 906 miles between Minneapolis and Havre, 731 miles are single track and 175 miles are double track. One section of 38 miles of double track extends west from Minneapolis to Delano, Minn. Short sections of double track, ranging from 15 to 47 miles each, extend both ways from each of several subdivision points.

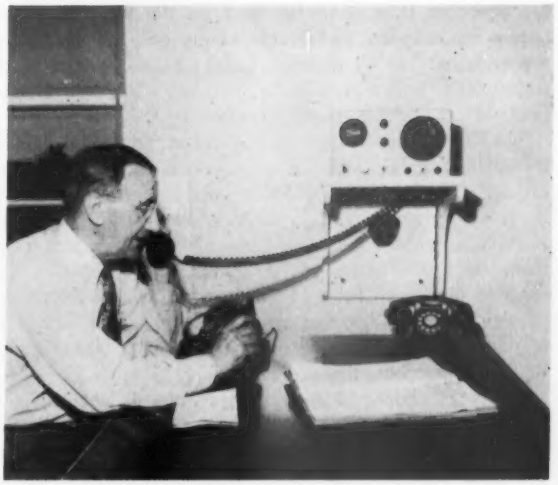
Train movements are authorized by timetable and train orders, with automatic block signal protection. Siding switches are operated by hand-thrown stands. On the 205-mile Willmar division between Minneapolis and Breckenridge, spring switches are used at both ends of 8 sidings and at one end of 5 sidings. On the Minot division (392 miles) between Breckenridge and Williston, spring switches are used at both ends of 2 sidings and at one end of 4 sidings. Spring switches are used at both ends of 7 sidings and at one end of 10 sidings on the 309-mile Butte division between Williston and Havre.

cies, such as for hot boxes or engine trouble; (3) full information is given to the dispatcher when trains are delayed, enabling him to better coordinate his moves; (4) trains are able to leave terminals promptly on verbal orders from the conductor instead of hand signals; (5) conductor and engineer can confer about the manner in which train orders are to be carried out, enabling crew members on both ends of the train always to have a clear understanding; (6) train crews can inform wayside operators and dispatchers of conditions of track or roadway, particularly during winter months; and (7) everyone—train crews, wayside operators and dispatchers—is kept informed concerning train movements and operating conditions. Thus in many ways, some of which are new each day, the radio saves train time so that shipments are expedited, especially during seasons of heavy traffic.

Locomotives and Cabooses Run Through

Locomotives and cabooses in through freight service make the entire run from Minneapolis to Havre. Each of the diesel-electric locomotives ordinarily consists of two cab units and a B unit, each of the cab units being equipped with complete independent radio. Fifteen such locomotives are regularly assigned for through trains. During periods of heavy traffic, some of these radio-equipped cab units may be used with other diesel units to make extra locomotives.

The new cabooses are of steel construction, and are completely electrically equipped including power not only for radio, but also for interior electric lights and coffee hot plates, as well as electric marker lights and outdoor spotlights. These cabooses are unassigned, and



CHIEF DISPATCHER and wayside operators use radio to get information about train movements.

ENGINEER confers with his conductor via radio about a meet with another train.

CONDUCTOR "talks" train into a siding eliminating guesswork by the engineer when stopping "in the clear."

are operated through either way on the 906 miles between Minneapolis and Havre. Thus only 25 cabooses are required for all through freight trains. Engine and train crews change at Willmar, Breckenridge, New Rockford, Minot, Williston and Glasgow.

The 36 wayside radio stations are at Minneapolis and Havre, at six subdivision points and 28 intermediate offices. Of the 36 offices, 34 are open continuously and 2 are open days only. The wayside offices equipped with radio were selected on the basis of providing not only train-to-wayside communications, but in emergencies (in case of line-wire failure) to provide station-to-station communication. As a result, radio-equipped wayside offices range from a minimum of 12 miles to a maximum of 42 miles apart, the average being 25 miles.

Solid train-to-wayside station coverage is obtained, in that a train between two wayside offices can maintain radio communication with both offices. The only exception is that trains between Campbell and Morris, Minn., usually are able to maintain contact with only one station at a time. This solid coverage was of particular benefit on June 7 and 8 when high winds caused line wire breaks between Breckenridge, Minn., and Fargo, N. D. Train operation was maintained by radio, and train orders and messages were relayed between stations.

By locating the radio stations at or near junctions of branch lines with the main line, the operator can talk to radio-equipped trains on the branch lines. Thirteen of the 36 wayside radio stations are located at or near branch lines. For example, Willmar is a junction where the Sioux City line and the St. Cloud, Minn., line join the main line. The dispatchers working both of these lines are at Willmar. The time freights and locals on these branches have radio-equipped engines, and some of the cabooses have radio. Because Willmar has a radio station, the dispatchers are able to contact the trains on these branches. The use of radio has eliminated stops and delays to these when entering and leaving the yard.

End-to-end radio communication is to be provided between Havre, and Wenatchee, Wash., by equipping an additional 22 locomotives (44 cab units) and 20 cabooses with radio. For 70 miles west of Wenatchee to Skykomish, the Great Northern uses electric locomotives for pulling trains over the Cascade mountains. For operation in the electrified territory, 15 electric locomotives, 1 high car for electrical maintenance and the automobile of the superintendent of electric operation are to be radio equipped.

Also included in the Wenatchee-Seattle radio program is the equipping of 10 wayside stations, 4 diesel road locomotives (8 cab units), 3 cabooses, 2 ditchers and the Seattle superintendent's automobile. Several railroad business cars have been equipped with radio, including the car of the vice-president of operations. Two fixed stations and 15 yard engines have been equipped with radio at Hillyard, Wash. Also 15 walkie-talkies were provided for car checking operations at Willmar and at three yards in Minneapolis—Lyndale, Q and Union.

Work on the Minneapolis-Havre project was directed by C. H. Wesman, communications engineer, who supervised the surveying, planning and installation under the general direction of A. H. Fox, superintendent of communications. The major items of radio equipment were supplied by the Bendix Radio division of Bendix Aviation Corporation.

LATEST FOR WAITING ROOMS . . .

This Station Has

Created particularly with an eye toward maximum passenger comfort and convenience, the Burlington's new Hannibal, Mo., depot incorporates advances in design and construction

A ceiling that glows is a feature of the passenger station the Chicago, Burlington & Quincy has just constructed at Hannibal, Mo., to replace a massive 71-year old two-story gabled structure which, in addition to being outmoded, was much larger than was economically necessary.

The unusual ceiling which embellishes the waiting room consists essentially of translucent panels which transmit light from fluorescent fixtures in a plenum chamber overhead. Aside from the illuminated ceiling the wait-

EFFECT produced by the luminous ceiling is brought out by this view of the waiting room.

THE OLD massive 71-year-old structure, which was replaced, was outmoded and also much larger than was economically necessary.

THE NEW one-story modern building is of red brick and steel construction, trimmed with aluminum and concrete.

Luminous Ceiling

ing room is notable for the informal, club-like motif in its decorations and furnishings, a design altogether in keeping with the low, modern lines of the whole structure.

This new one-story depot of red brick and steel, trimmed with aluminum and concrete, consists of two wings in the shape of an open "L." It is constructed on the site of the old station, which was removed to make way for it. One wing, which contains the lobby, waiting room and ticket office, fronts along Main street, while the other, which houses the rest rooms, heating plant and baggage and express facilities, angles north toward Church street.

Unusual Lighting Effect

The illuminated ceiling extends over the area occupied by the waiting room, foyer and open ticket-selling space. When illuminated, this ceiling sheds a completely shadowless, warm, opalescent glow throughout the entire area, thereby enhancing the already restful and comfortable atmosphere.

The ceiling, furnished and installed by Luminous Ceilings, Inc., of Chicago, consists of translucent, milk-white, corrugated plastic panels dropped 4 ft 8 in. below the roof from which they are suspended. The panels are separated by acoustical baffles which, projecting a short distance below the ceiling, are designed to lower the level of objectional noise.

The fluorescent tubes comprising the light source are concealed in the plenum chamber between the ceiling and the roof slab. The underside of the roof slab is painted a dead white to provide a reflective surface. With this arrangement it was possible to predetermine the intensity of illumination below the ceiling by spacing the lighting tubes at the optimum distance above the ceiling level. The plastic panels forming the ceiling are flexible and may be rolled up and removed for cleaning or for access to the plenum for servicing the lighting tubes.

The waiting room (see floor plan) is separated from the foyer and ticket-selling space by low planting boxes which extend about one-third of the way between the outside walls. This room is informally furnished in

TICKET-SELLING SPACE, located across the lobby from waiting room, has counter faced with fluted aluminum.

AT NIGHT an illuminated emblem dominates the entrance to the cheerfully lighted interior.

comfortable fashion with chairs and settees with spring and foam-rubber upholstering covered with a leather-like plastic in tones of beige, green and coral. Interspersed with these chairs are a number of occasional tables with black marbelized tops, on which are placed table lamps with bases of satin-finished chrome.

Interesting Wall Treatment

Another distinctive decorative feature of the waiting room is the treatment of the south wall which is finished in the red-textured face brick used on the exterior of the building. Mounted in the center of this wall just below the ceiling is a synchronous clock with a skeleton dial, the numerals and hands of which are of satin-finished aluminum. Flanking the clock, but about midway between the floor and the ceiling, are two concrete plant boxes attached to the wall, which help to provide a pleasing diversification of interest in what would otherwise be an unbroken wall surface. The floor has a terrazzo-like marblette surface on a concrete base.

Abundant natural illumination in the waiting room is supplied by a large window in each side wall. These windows, 24 ft wide by 8 ft 6 in. high, are set in aluminum frames and are outlined on the exterior by concrete stile and head walls which project approximately two feet beyond the building wall. Entrances to the foyer space, protected by vestibules of glass set in aluminum frames are provided on both the track and Main Street sides.

Heat for the building is supplied by an oil-fired hot-water boiler equipped with a draft inducer and circulating water pumps on the return lines from each of three heating zones. Zone 1 includes the baggage room. Zone 2 embraces the baggage office, rest rooms, ticket office, train-crew quarters and valuables room. Zone 3 covers the waiting room, foyer and ticket-selling space. The heat is controlled thermostatically in each zone at a level compatible with the zone activity. Except in the waiting room and lobby space, where heat is supplied through unit heaters mounted in the ceiling, heating is through convectors.

The brick exterior walls of the building are supported on concrete footings. The interior partitions are of brick or concrete blocks. There is no basement. Because of the width between the side walls two lines of intermediate concrete-filled pipe columns on concrete footings support wide-flange steel beams which carry the roof slab of 6 by 12-in. Flexicore units. The roof incorporates fiber-glass insulation and carries a tar-and-gravel surface.

The roof slab extends 2 ft beyond the building walls to form overhanging eaves, except at the north end of the building. Here the roof slab is cantilevered out from the building wall on wide-flange beams to form a 16-ft canopy at the entrance to the baggage room. The edges of the roof and canopy are faced with fluted sheets of rolled aluminum.

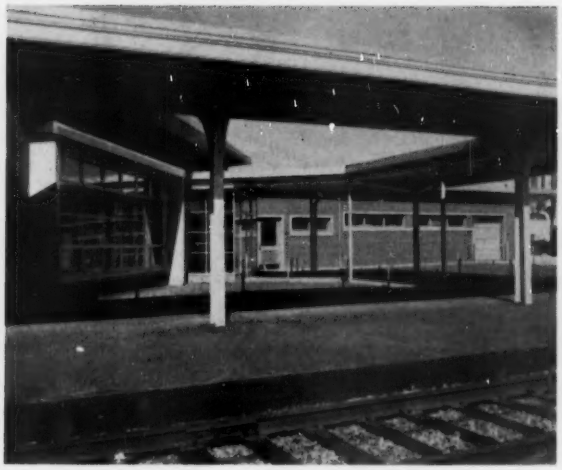
Track Changes

As part of the project the main track which lay to the west of the old depot was shifted to the east side of the new structure, and the area it formerly occupied was developed into driveway and parking space. This space connects with a city parking lot along Church street, thereby providing adequate parking facilities.

Three widely separated spur tracks were removed and two new stub tracks with bumping blocks were constructed to the west of, and parallel with, the main track. A platform 600 ft long serves the main track and one of the spur tracks while a shorter platform serves the other stub track.

An umbrella-type steel-frame canopy, with a tar-and-gravel roof on wood roof decking, extends the length of the main-track platform. A connecting canopy extends between the main canopy and the track-side entrance to the station. This canopy is supported by steel-pipe columns filled with concrete and the roof consists of two lines of wide-flange beams carrying Flexicore slabs covered with tar and gravel. The edges are trimmed with rolled aluminum facing.

A station sign of Tymstone letters identifies Hannibal at the north end of the main canopy at the baggage room. An illuminated "Burlington Route" emblem is mounted over the Main Street entrance. Illumination

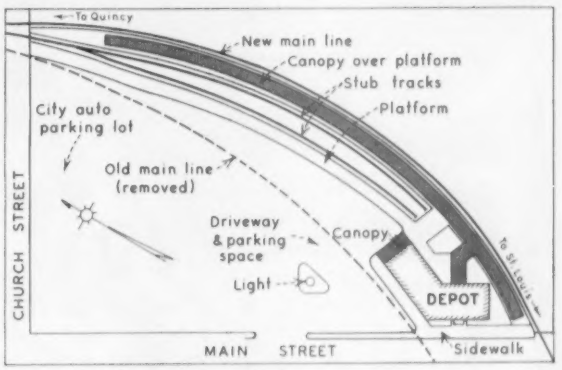


CANOPY over the main-track platform, and a canopy over the walkway from platform to track-side entrance to depot, provide all weather protection of passengers while . . .

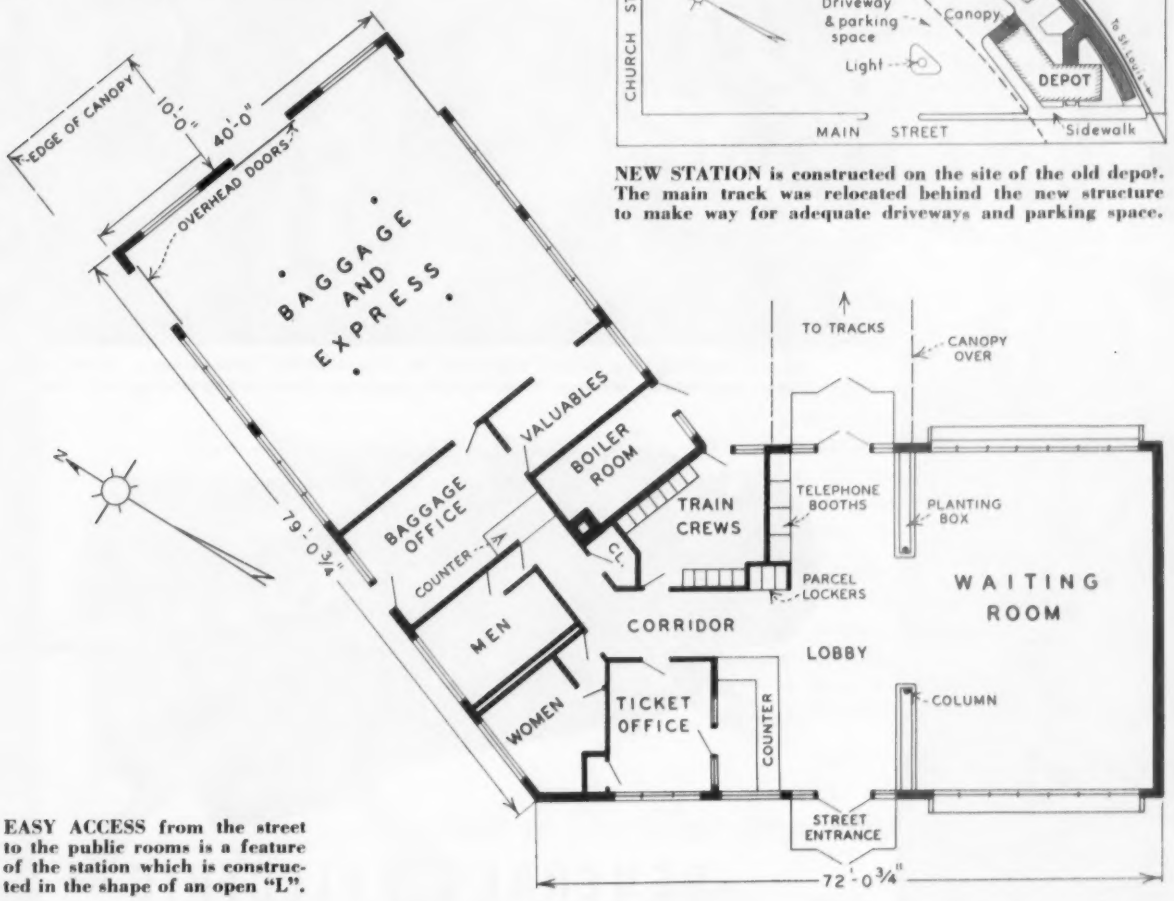
MAIL and baggage is protected by a cantilevered canopy which covers the platform entrance to the baggage room. Station sign of Tymstone letters identifies the town.

for this sign originates in floodlights concealed in the roof of the entrance portico.

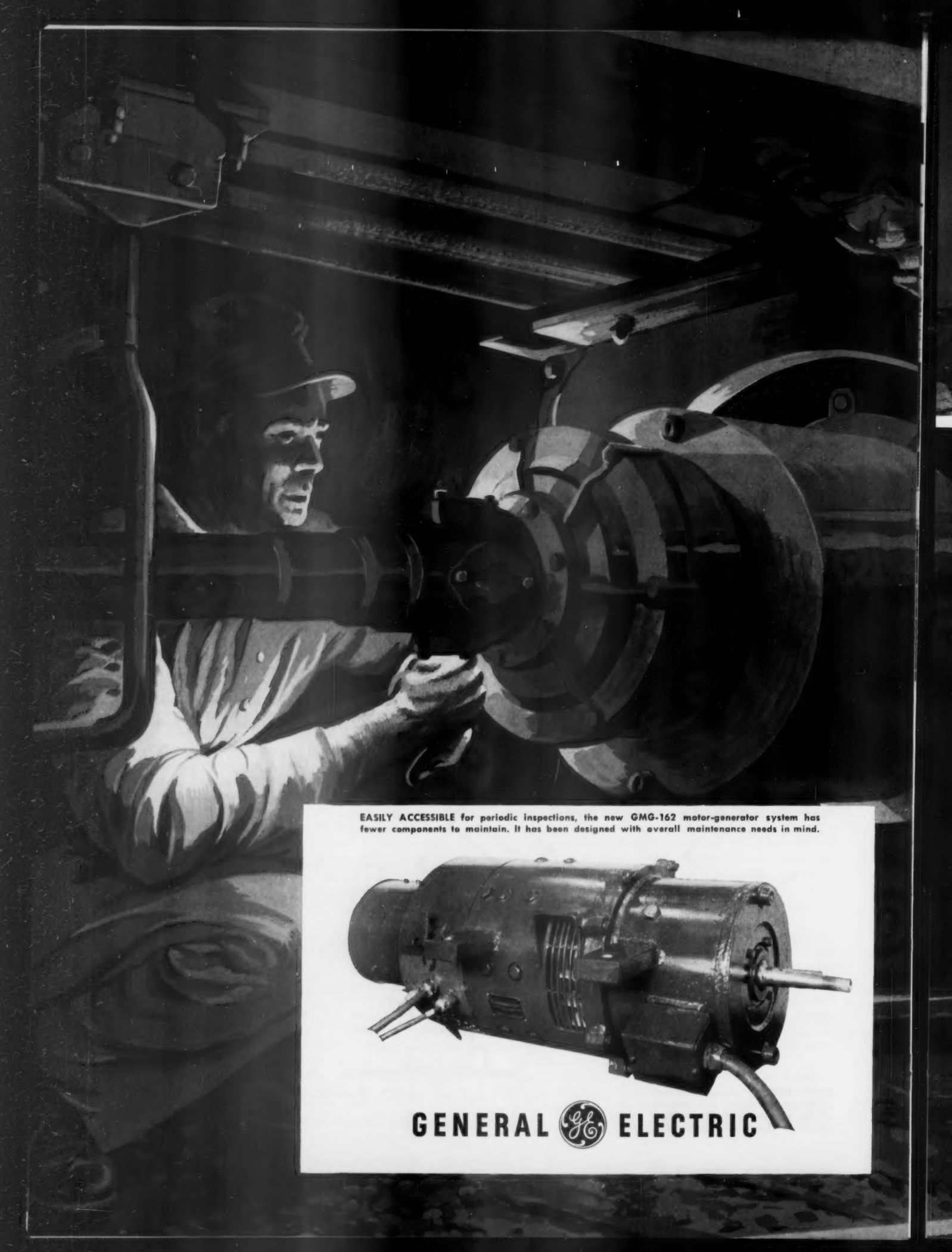
The new facility, which cost approximately $125,000, was designed and constructed under the general direction of H. A. Aalberg, chief engineer, and under the direct supervision of A. H. Simon, engineer of buildings. The Martin Construction Company, Hannibal, Mo., was the general contractor.



NEW STATION is constructed on the site of the old depot. The main track was relocated behind the new structure to make way for adequate driveways and parking space.



EASY ACCESS from the street to the public rooms is a feature of the station which is constructed in the shape of an open "L".



EASILY ACCESSIBLE for periodic inspections, the new GMG-162 motor-generator system has fewer components to maintain. It has been designed with overall maintenance needs in mind.

GENERAL ELECTRIC

NEW, STREAMLINED passenger cars on the Canadian National Railways will make train travel in Canada more pleasant than ever.

INTERIOR FEATURES include modern lighting, air conditioning, and water coolers.

CANADIAN NATIONAL RAILWAYS

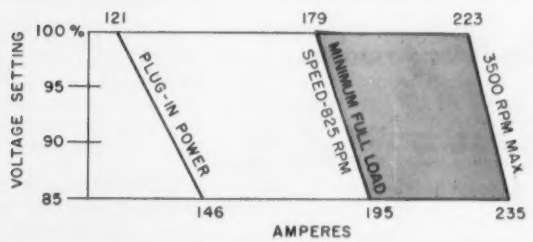
New G-E axle-driven motor-generator offers easier maintenance, high reserve power

SIMPLIFIED SYSTEM INSTALLED ON 100 CANADIAN NATIONAL COACHES

The new coaches on the Canadian National Railways carry the latest lighting, air conditioning, heating, and other passenger comforts. To supply reliable power for this equipment, an improved axle-driven motor-generator system, developed by General Electric, is installed on 100 cars built by Canadian Car & Foundry Co., Ltd.

SIMPLIFIED SYSTEM CUTS COSTS

The keynote of the new system is simplicity. Fewer components means that installation and maintenance are easier, and you have fewer parts to stock. Your overall costs are lower. A special feature is the mounting of the armature on a full-length sleeve so that the shaft can be removed easily without disturbing the a-c rotor, fan, or d-c armature.



HIGH RESERVE POWER is available with the new motor-generator. Chart shows how current limit increases with train speed in 140-volt system. Red area represents extra output.

RELIABILITY IN OPERATION

Like all G-E equipment for railroads, the GMG-162 motor-generator is designed to take the pounding and stress of high-speed operation. Sturdy construction features help you get thousands of hours of outstanding performance.

EFFICIENT OUTPUT AT VARIOUS SPEEDS

The new G-E motor-generator delivers full output over a wide range—from low speeds up to 100-plus mph on the level. This means less drain on your storage batteries. Also, it charges low batteries at a rapid rate. Fewer standby rechargings are needed.

More than 2800 G-E axle-driven motor-generators and 1300 axle-driven generators are in service on Class I railroads. To get fully engineered power supply and distribution for your passenger cars, call in your G-E Apparatus Sales representative. General Electric Co., Sect. 122-14, Schenectady 5, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Supply Trade

(Continued from page 17)

and patents. Production operations for manufacture of Torcon torque converters will be transferred to Clark's transmission plant at Jackson, Mich.

Paul B. Benner, assistant chief engineer of the **Caterpillar Tractor Company,** has been appointed chief engineer of the Decatur, Ill., plant, which is now under construction and scheduled for full production in the spring of 1956.

Demp-Nock Company has appointed the following sales representatives: **O'Fallon Company,** 314 North Broadway, St. Louis; **Modern Supply Company,** 222 West Adams street, Chicago; **Henry J. Linn Company,** 124 Charles street, Boston; and **Walter Day Railway Supplies,** 112 Market street, San Francisco.

The **Blaw-Knox Company** has acquired all outstanding capital stock of the **Tri-Lok Company,** grating manufacturer.

Russell Herig, formerly with the Nye Tool Company, has been appointed field sales manager for **Beaver Pipe Tools, Inc.**

Joseph F. Collins, Jr., has been appointed a special representative in the electronic data-processing machines department of **International Business Machines Corporation.**

OBITUARY

Charles Gaspar, who retired in November 1945 as sales manager, New York office, National Malleable & Steel Castings Co., has died. Mr. Gaspar joined National Malleable in 1912, after having served as superintendent of motive power and cars for the Canton-Hankow Railway at Canton, China.

GEORGE H. SNYDER, formerly vice-president of American Steel Foundries, who has been named president of Trans-Temp Corporation, a newly formed company at Chicago, which has been appointed exclusive distributor of the Thermo-King Railway Corporation's mechanical refrigeration units for all types of railroad equipment.

Securities

New York Central. — *Employee Stock Purchase Plan.* — NYC stockholders will be asked to approve plans for incentive bonus payments to employees, and a plan giving all employees the right to subscribe for a maximum of 200 shares of NYC stock. In addition, key employees would be permitted to purchase over 200 shares.

Alfred E. Perlman, NYC president, has agreed to purchase up to 32,000 shares, subject to approval by stockholders and any regulatory body having jurisdiction. Mr. Perlman has agreed to remain in NYC employ for at least two years. The agreement grants him an unassignable right to purchase NYC capital shares for investment at $19.875 a share, exercisable only after two years and within 10 years from October 20, 1954.

Dividends Declared

ATLANTA & WEST POINT. — $2, payable December 20 to holders of record December 3.

ATLANTIC COAST LINE.—$1.25, quarterly; extra, $1; both payable December 13 to holders of record November 15.

BANGOR & AROOSTOOK.—5% preferred, $1.25, quarterly, payable January 3, 1955, to holders of record December 6.

LOUISVILLE & NASHVILLE.— $1, quarterly; extra $1; both payable December 13 to holders of record November 1.

MAINE CENTRAL.—5% preferred, $1.25, payable December 1 to holders of record November 16.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—$1, quarterly, payable December 1 to holders of record November 9.

NORFOLK & WESTERN.—75¢, quarterly; 50¢, extra; both payable December 10 to holders of record November 10.

READING.—4% non-cumulative 1st preferred, 50¢, quarterly, payable December 19 to holders of record November 18.

SOUTHERN.—common, 62½¢, quarterly; 5% non-cumulative preferred, 62½¢, quarterly; both payable December 15 to holders of record November 15.

WESTERN OF ALABAMA.—$4, payable December 20 to holders of record December 3.

Security Price Averages

	Nov. 1	Prev. Week	Last Year
Average price of 20 representative railway stocks	70.64	71.24	59.72
Average price of 20 representative railway bonds	96.25	96.35	91.21

Financial

ODM Extends "Write-offs" To Main Line Construction

The Office of Defense Mobilization has broadened the tax "write-off" privileges available to railroads to include new main line construction or improvements essential to the national defense.

Previously the quick amortization was applicable to the cost of new diesel servicing facilities, spur tracks, passing tracks and extensions, CTC systems, classification yards, repair and construction shops, freight terminals and railroad dock terminals.

The ODM said each application would be handled individually according to the improvements' use in preventing interruption of main-line service or bottlenecks. The time limit for start of construction was set as June 30, 1955.

Railway Officers

ALTON & SOUTHERN.—A. L. Lenny, superintendent at East St. Louis, Ill., has been appointed general manager-maintenance and operations at that point and will assume the duties of **Raymond Durley,** vice-president-operations, who retired September 30. Mr. Lenny's successor is **E. B. Hardwig. Wayne Harriss,** supervisor of personnel, becomes assistant general manager in charge of personnel and public relations there, while **E. J. Maher** has been named director of personnel.

BAUXITE & NORTHERN.—J. A. Waggener, vice-president at Bauxite, Ark., has been appointed also executive assistant to president of the Point Comfort & Northern at Lolita, Tex., and the Rockdale, Sandow & Southern at Rockdale, Tex. **James Davies, Jr.,** assistant general manager of the B&N, has been named general manager, while **J. H. Doyle,** agent and assistant to vice-president, becomes superintendent with direct supervision over transportation.

ASSOCIATION OF WESTERN RAILWAYS.—Robert J. Bernard, formerly an examiner with the ICC at Washington, D.C., has been appointed attorney, law department, Association of Western Railways, at Chicago.

ATLANTA & WEST POINT — WESTERN OF ALABAMA — GEORGIA.—E. S. Center, Jr., general development agent of these roads, has been appointed general development and real estate agent at Atlanta.

ATLANTIC COAST LINE.—A. L. Barham has been appointed agricultural and livestock agent at Rocky Mount, N.C.

BANGOR & AROOSTOOK. — **Joseph H. Callan** has been elected chairman of the executive committee of the B&A. **William B. Hill,** vice-president—traffic, has been elected vice-president; **H. W. Moore,** assistant vice-president—traffic, has been named vice-president—traffic; and **John E. Hess,** clerk of the corporation, has

been named general counsel, all at Bangor, Me.

Mr. Moore was graduated from Boston University and Harvard School of Business Administration. He joined the B&A in February 1953 as assistant vice-president—traffic. Prior to that he had served for seven years as executive secretary of the Potato Industry Council of Maine, Inc.

H. W. Moore

Mr. Hess is a graduate of Ricker Classical Institute, Bowdoin College, and Harvard Law School. He became a member of the legal staff of the B&A in 1948 as special assistant, subsequently being appointed assistant general counsel and, as of last April, clerk of the corporation. He is presently a member of the Bangor City Council.

BELT RAILWAY OF CHICAGO — CHICAGO & WESTERN INDIANA.—**Samuel Kassel,** general attorney at Chicago, has been appointed general solicitor there.

CANADIAN NATIONAL.—**Arthur B. Smith,** manager of the advertising branch of the CNR at Montreal, has retired after 44 years of service. Administrative duties of the branch have been taken over by **A. L. Sauviat,** assistant director of public relations.

George Herbert Lash, director of public relations, has been appointed assistant to president at Montreal. **William Richard Wright,** special assistant in the office of president, succeeds Mr. Lash.

NEW HAVEN. — **Howard A. Moulton,** who has been in charge of the Boston public relations office as special representative, has been named resident public relations manager at Boston. **Robert E. Laughlin,** director of promotion for the Bahama Islands, has joined the New York staff of the New Haven as public relations assistant, and **A. B. Virkler Legate** has resigned from the Watertown (N.Y.) Times to become associated with the New Haven office in a similar capacity. **George McCallum**, who has been handling public relations and magazine activities for the Maine Central, has joined the New Haven to re-establish the company magazine.

Sindo E. Cavalieri, safety representative, has been appointed manager, Employees' Suggestion System, at New Haven.

NEW YORK CENTRAL.—**J. E. Newman,** director of labor relations at New York, has been appointed manager of personnel. **E. W. Hobbs,** assistant general manager—labor relations on the Michigan Central at Detroit, succeeds Mr. Newman at New York. **R. R. Hicks** has been named director of training and employment. Mr. Hicks joined the NYC September 15, when he left the Denver & Rio Grande Western, where he was manager—employee relations. **J. G. Castle,** director of training and employment at New York, has been promoted to assistant director of labor relations. **F. C. Hagerman,** chief clerk in the personnel department, also has been appointed assistant director of labor relations.

Robert W. Carroll has been named assistant secretary of the road at New York.

P. D. Nichols, land and tax agent, with jurisdiction over the New York City area, retired October 31 after 34 years service. **E. B. Egan,** land and tax agent with staff duties, succeeds Mr. Nichols. **Frank P. Tighe,** assistant land and tax agent, succeeds Mr. Egan.

F. K. Mitchell, Jr., assistant division superintendent of the Big Four at Van Wert, Ohio, has been transferred to Indianapolis. **W. R. Foster,** road foreman at Indianapolis, has been named trainmaster of the Ohio division at Van Wert.

J. H. Kelly, engineer maintenance of way—Lines East, has been appointed assistant chief engineer maintenance of way—system, with headquarters as before at New York. **K. E. Dunn,** industrial engineer of the system, has been appointed assistant engineer maintenance of way, Lines West district, at Cleveland, succeeding **J. L. Cox,** who has been promoted to succeed Mr. Kelly as engineer maintenance of way —Lines East at New York.

NORTHERN PACIFIC. — **M. C. Wolf,** assistant engineer, has been appointed valuation engineer at St. Paul, succeeding **W. H. Jahn,** who has retired.

John A. Risendal, district claim agent at St. Paul, has been appointed assistant general claim agent at that point.

PIEDMONT & NORTHERN. — **A. C. Moore, Jr.,** has been appointed auditor disbursements at Charlotte, N.C., succeeding **R. L. Holder,** who resigned August 16.

PULLMAN COMPANY.—**Arthur H. Lobeck,** regional manager at Philadelphia, has been named assistant vice-president—operating at Chicago. Succeeding Mr. Lobeck is **John J. Fiora,** superintendent at Philadelphia. Mr. Lobeck has been manager of the Eastern-Southeastern region since 1951. He formerly was zone superintendent at Philadelphia and prior to that was district superintendent at Denver.

Arthur H. Lobeck

John J. Fiora

SEABOARD.—**G. C. Poole,** assistant freight traffic manager at Raleigh, N.C., retired October 31 after 50 years of service. **M. Wyatt Thompson,** commercial agent at Washington, D.C., has been promoted to district freight agent at Richmond, Va., succeeding **Frank E. Harrison,** who has been transferred to Raleigh. Mr. Harrison replaces **W. H. Higginbotham,** whose appointment as assistant general freight agent at Raleigh was noted in *Railway Age* October 4.

D. D. Langford, general foreman, car department, at Miami, has been appointed superintendent car department at Savannah, Ga.

OBITUARY

Eugene B. Hyden, 68, district freight agent of the **Southern** at Chattanooga, Tenn., who was scheduled to retire November 1, after 48 years of service, died October 29.

Gustaf A. Olson, retired shop superintendent of the **New Haven,** died September 27 at his home in Chicago.

Solid bearing freight cars give

$250,000 EXTRA

on each 1000-car

You get from 6.25% to 10% more income from your investment when cars are solid bearing equipped—regardless of traffic conditions.

ALL labor and material costs for solid bearing operation, including overhead expense, come to less than the fixed charges on the huge investment necessary for non-standard bearings. That's established when you analyze the University of Illinois study of journal bearing operation* in the light of high initial roller bearing costs.

But the University also included costs for car delay days, based on problematical earnings and ownership costs. According to the University, the earnings presumed to be lost because of delay days constitute a significant percentage of the total costs for solid bearing operation.

How Problematical Earnings Prove The Case for Solid Bearings

When you talk about problematical earnings, you've got to relate them to *return on a prospective investment*, and not just to costs for an investment already made. That's the basis for all sound business procedure. Let's look at a case in point.

Suppose you're an average railroad with a given amount of money you can spend for *needed* freight equipment now. Say that the money you have is $6,600,000.00.

Now let's further suppose that the average freight car costs $6,000.00, and that this car could be equipped with roller bearings for only $600.00 additional. For the money on hand you could then buy 1100 solid bearing cars or 1000 roller bearing cars.

Do you want to know what the *loss* on the roller bearing investment would be? Here's a rule-of-thumb to figure it. Still assuming these 100 extra cars are needed, each of them will produce annual revenue of $4,000.00,** or a total of $400,000.00 per year. Then from this sum you subtract the difference, if any, in maintaining and operating journal assemblies on 1100 solid bearing cars as opposed to 1000 roller bearing cars.

Applying the Rule-of-Thumb to a 1000-Car Investment

But the costs for roller bearing maintenance and operation on freight cars are unknown. However, from the University of Illinois report we learn that solid bearing operating costs (including all delay day costs for periodic maintenance and train inspection, as well as hot boxes) range between $7.59 and $8.53 per 1000-car-miles.*** If each car accumulates 16,800 miles per year, maximum annual solid bearing operating costs would be $8.53 x 16.8 x 1100, or $157,634.40. Thus, your *minimum annual loss* on 1000 roller bearing cars would be $242,365.60 ($400,000.00 less $157,634.40) *plus* the annual expense for skilled labor and materials for roller bearing maintenance on 1000 cars, and *plus also* any loss of revenue sustained because of delay days due to roller bearing failures, maintenance and inspection, etc. Conservatively, if you specify solid bearings you gain from $250,000.00 to $400,000.00

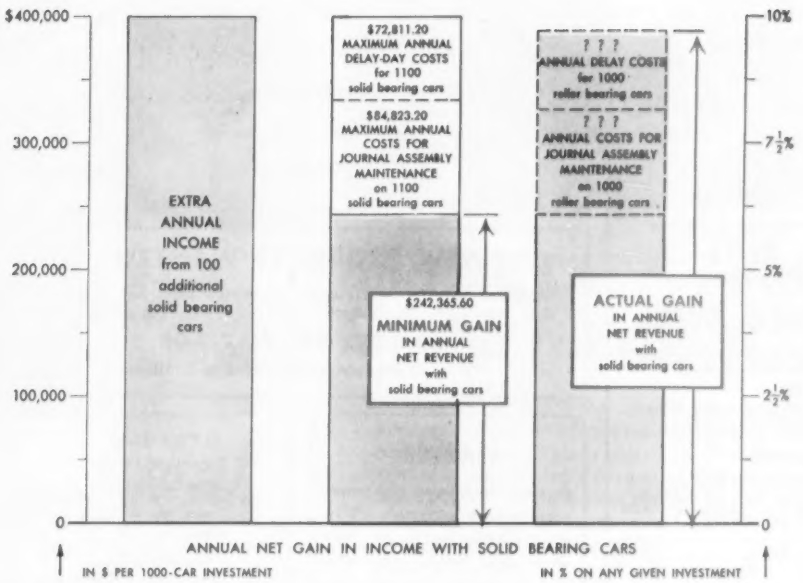
*University of Illinois Engineering Experiment Station, Bulletin Series No. 406: An Economic Investigation of Solid Journal Bearing Operation in Freight Service on Two Large Class I Railways; February, 1953.

**According to American Railway Car Institute, average revenue per freight car in 1953 was $4,351.00, and the average cost of all maintenance per car, including journal assemblies, was $350.65.

***These costs, while used here, are probably too high. See Magnus Bulletin No. 2068-68.

equivalent of
REVENUE PER YEAR
investment

The left-hand column shows the average extra annual revenue that can be obtained by buying 1100 solid bearing freight cars instead of 1000 roller bearing cars. The middle column graphically subtracts from this extra revenue all solid bearing operating costs on 1100 cars, and the remainder represents the minimum gain in net revenue that would result if roller bearings could eliminate all maintenance, delay, and failure costs. To determine the actual annual net gain, this minimum net gain should be increased by the unknown amount of the costs for roller bearing operation on 1000 cars, as indicated in the right-hand column. The reference line at the right indicates the percentage increase in return with solid bearings that can be anticipated for any given car investment.


$400,000
300,000
200,000
100,000
0
10%
7½%
5%
2½%
0
EXTRA ANNUAL INCOME from 100 additional solid bearing cars
$72,811.20 MAXIMUM ANNUAL DELAY-DAY COSTS for 1100 solid bearing cars
$84,823.20 MAXIMUM ANNUAL COSTS FOR JOURNAL ASSEMBLY MAINTENANCE on 1100 solid bearing cars
$242,365.60 MINIMUM GAIN IN ANNUAL NET REVENUE with solid bearing cars
? ? ? ANNUAL DELAY COSTS for 1000 roller bearing cars
? ? ? ANNUAL COSTS FOR JOURNAL ASSEMBLY MAINTENANCE on 1000 roller bearing cars
ACTUAL GAIN IN ANNUAL NET REVENUE with solid bearing cars
ANNUAL NET GAIN IN INCOME WITH SOLID BEARING CARS
IN $ PER 1000-CAR INVESTMENT
IN % ON ANY GIVEN INVESTMENT

for each year of operation, increasing your income at least 6.25% and possibly as much as 10%.

By the same token, suppose you only need 1000 cars to meet your traffic requirements. With solid bearings, you reduce your initial costs by $600,000.00 and you get the same proportionate increase in return per dollar of car investment represented by the $250,000.00 to $400,000.00 above. And since both freight revenues and bearing operating costs are proportionate to car use, this comparative increase in return with solid bearings holds true regardless of traffic conditions.

These hard economic facts prove the wisdom of present railroad policy to seek out and adopt the means for bettering solid bearing performance. For the most part these means are already available. Combine selective adoption of available developments with a program to improve maintenance standards and hot boxes will virtually disappear.

Write us for information about ways to improve journal bearing performance. Magnus Metal Corporation, 111 Broadway, New York 6; or 80 E. Jackson Blvd., Chicago 4.

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Right for Railroads

...in performance...in cost

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at least 3½" long within ½" of the wheel tread can't get past

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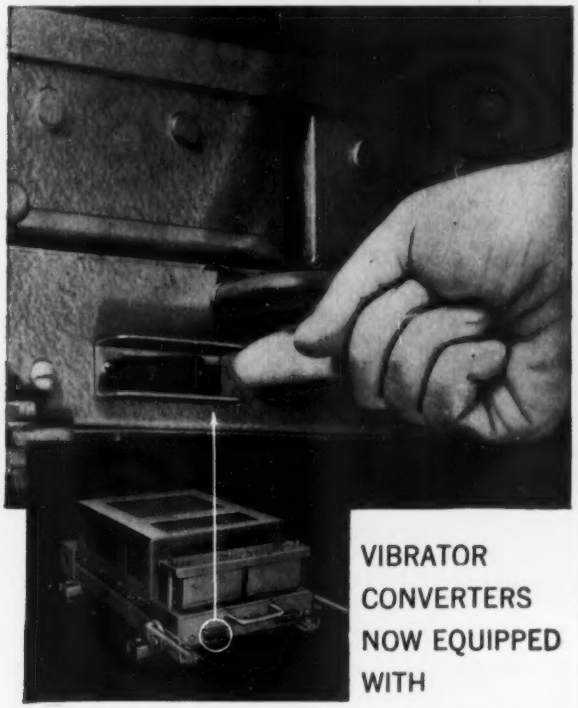

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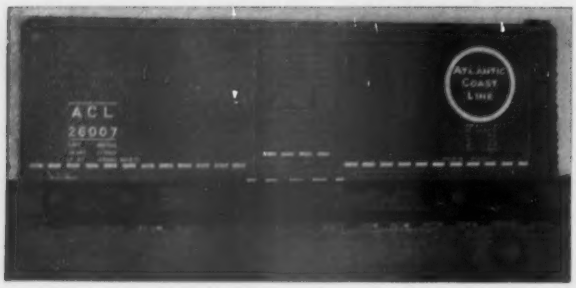

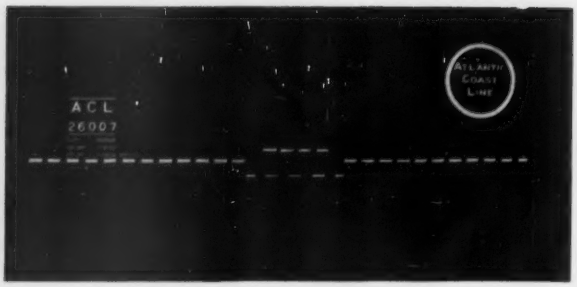

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In close to 100,000 roller freight journal boxes, National Oil Seals are performing a vital job quietly and efficiently—making their contribution to the success of roller freight and the elimination of costly hot boxes.

Mounted inside roller bearing journal boxes, National seals keep lubricant in, dirt and water out. They provide uniform, dependable sealing under all operating conditions, all weather extremes.

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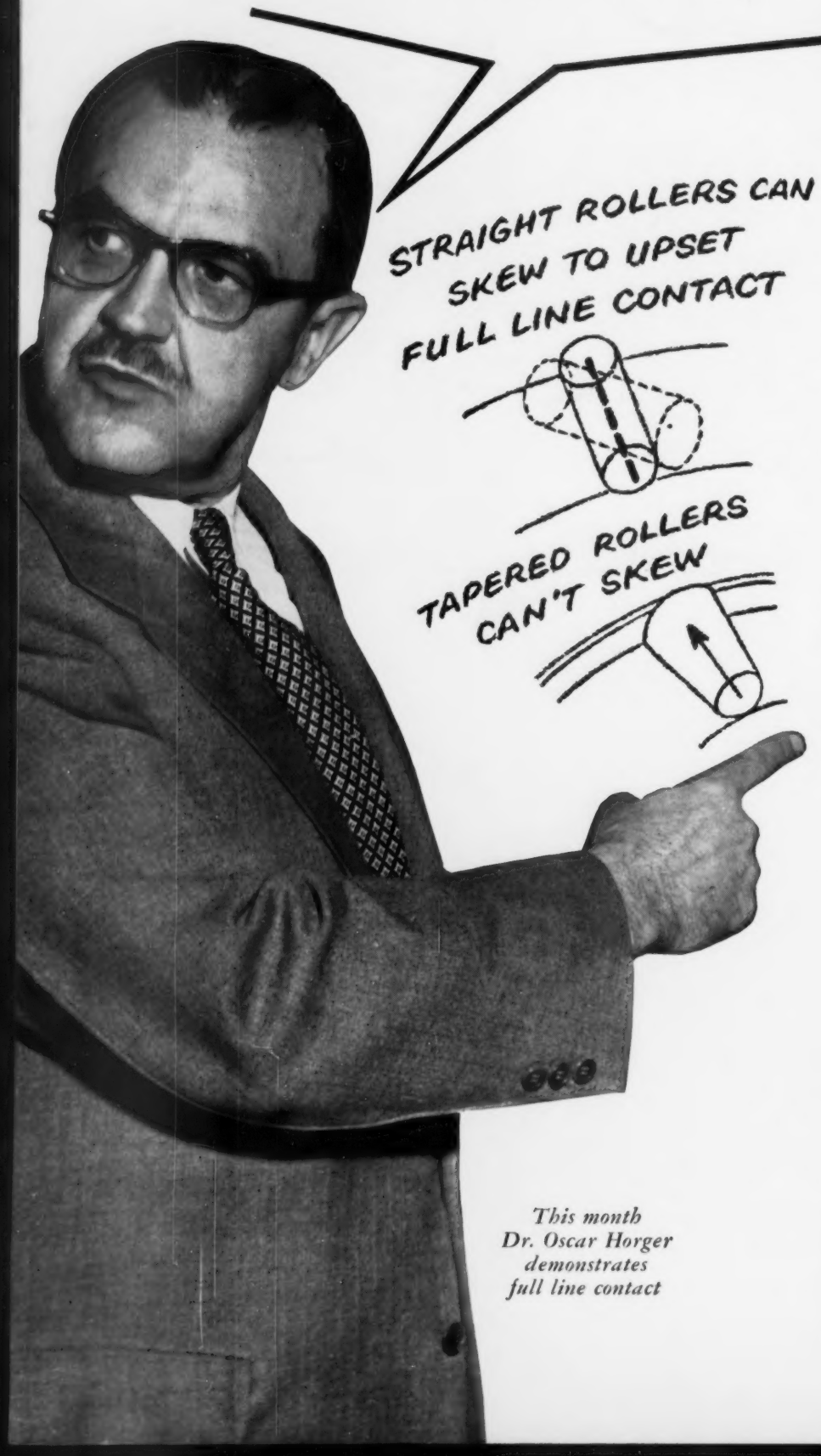
The taper makes TIMKEN® the only journal bearing that delivers what you expect when you buy a roller bearing



This month Dr. Oscar Horger demonstrates full line contact

ROLLER bearings are used on railroad journals for two primary reasons—to end the hot box problem and cut operating and maintenance costs to a minimum. The Timken® tapered roller bearing is the *one* bearing you can be sure of to do this. It's the taper! Here's why:

1) *Positive roller alignment.* The taper provides the forces which hold ends of rollers snug against the rib, where wide area contact keeps rollers properly aligned. There's no skewing of rollers to upset the full line contact and shorten the life of the bearing. The load is always carried over the *full* length of the rollers.

2) *No lateral movement within the bearing.* In straight roller bearings, lateral movement causes scuffing of rollers and races, especially on freight cars when they're dumped or bumped while standing still.

Lateral movement pumps lubricant through the seal and out of the journal box, draws dirt and water in.

Lateral movement also makes it necessary to use extra thrust bearings, blocks or other devices to take thrust loads. These thrust devices are difficult to lubricate with grease, and maintenance is high.

The taper in Timken bearings prevents lateral movement, enables the bearing to take the thrust. There's no scuffing, no pumping action. This helps end the hot box problem, means less maintenance, less lubricant and longer bearing life.

Get what you pay for when you switch to roller bearings to end the hot box problem and cut operating and maintenance costs to a minimum. Get Timken *tapered* roller bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭

BEARING TAKES RADIAL ↓ AND THRUST →▯← LOADS OR ANY COMBINATION ✳

THE TAPER MAKES

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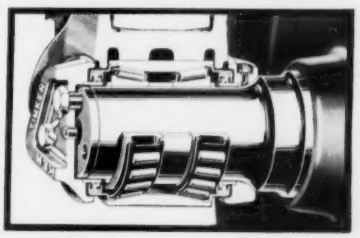
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